ALASKA LEGISLATURE COMMITTEE FILES 1981-1982 8672

1582 SHESS HB 313

1582

Testimony of George West, Vice-President for Academic Affairs at the University of Alaska.

George West - My name is George West. I'm Vice-President for Academic Affairs at the University of Alaska. I'm feeling in somewhat of an awkward position here because the Study Group has recommended the establishment of this center, all of a sud[illegible] so to speak, within the University of Alaska's system and it [illegible] really something we didn't lobby for in the first place. Nevertheless, we are very pleased because we do see the need for long-term basic and applied research in fisheries in Alaska, and we certainly want the University to be deeply involved in that research. We have reviewed this report, which you all have I'm sure, and concur with the direction that has been proposed by the Study Group, and as expressed by the Substitute Bill which is a part of that report. We believe that the center would have to be implemented in such a manner within the University so that it can be a cooperative research entity involving other research agencies, both within the University and the others that have been mentioned--Alaska Department of Fish and Game, National Marine Fisheries Service and the private entities as well. In that regard, the University would have to modify, somewhat, it's plan currently underway for improvement of fisheries programs to take into account this expanded responsibility. The University could only accept the center's program, of course, after review and approval of the Board of Regents and could implement the proposed center within the University's fiscal and facilities constraints--and you are all aware of the problems that the University has there with our priority programs that have been presented to the Legislature by the Board of Regents. We would not, as other agencies would not want, this or anything like this to be in competition with our original proposals. We concur with the Study Group's recommendations that start-up funding would only be provided this year. The University would, under such funding, provide a plan by next year for the full integration of the proposed center into the structure and programs of the University. I don't see any problems, as has been addressed by Dr. Bevan, of a reporting of the Board of Trustees to the President and Board of Regents. As he indicated, the Board of Regents is really involved with policy matters which are implemented by the President. Senator Parr mentioned the advisory panel of the Geophysical Institute, and though I do not feel quite the same that they are not really [effective]: it is a national advisory panel; it does set the long range actions and directions of the Geophysical Institute; and it does report to the President. There are some similarities there so I really don't see it is that much of a problem. Are there any questions?

Sen. Parr - Commissioner Skoog testified that, of course, the Department head, say the Division of Research, would be competing for those funds going into the budget, et cetera. It appears

that such a center in the University would also be competing with other University needs when it comes into the final budget.

George West - That depends on how the Legislature [views] their budget; whether it becomes a line appropriation for this center independent from the rest of the University's budget. Otherwise, I guess, to be honest, yes, in all cases, if it's all in the same pot then you have to list your priorities and the Regents do [list] such priorities as advised by citizenry, the faculty and so forth on through the President and there would be the potential of a problem there possibly.

Sen. Parr - You also mentioned, of course, that this would be subject to acceptance and approval by the Regents. We have had a couple of cases in the last couple of years in which the Legislature gave the Regents something and the Regents didn't really want it. When would it be possible to find out at least an informal expression of the Regent's attitudes towards being given such a center that they didn't ask for?

George West - Informally, we could probably do that very fast. The Regents are in town tomorrow, in a work session and a board meeting on Friday. I expect it might be possible to have some [informal expression of interest to you, tomorrow].

Sen. Parr - Dr. Barton has been going around the State, as you know, beating the drums to the fact that the Legislature shouldn't be telling the University what to do and the Regents should be making the decisions on a statewide basis. I know the Legislature has given the Regents institutes before and given them some other things that they didn't ask for too. If they don't ask for it, we really don't want to give it to them.

George West - I can't, of course, speak for the Board of Regents but such a plan as this seems to me [something that they would be interested in].

Sen. Parr - What were you referring to when you said you would need to modify your current plans?

George West - The University has a plan already established for the future of fisheries in the statewide system. There is the marine fishery research going on in Juneau ... those kinds of things that are going on will probably have to be modified somewhat...

Sen. Parr - Anymore questions? Does anyone else want to speak on HB 313? Meeting adjourned.

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST
Bill/Resolution No. Senate HESS Committee Substitute for HB 313
Title Alaska Fisheries Center
Requested by Senate HESS Committee Date 4/12/82

II. FISCAL DETAIL
Agency Affected University of Alaska
Program Category Affected
BRU, Program, Or Subprogram(s) Affected
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES		52.3	590.3	1,128.3	1,666.3	2,204.3
200 TRAVEL		21.3	65.3	109.3	153.3	197.3
300 CONTRACTUAL		92.0	867.0	1,642.0	2,417.0	3,192.0
400 COMMODITIES		3.0	73.0	143.0	213.0	283.0
500 EQUIPMENT		4.0	409.0	300.0	300.0	300.0
600 LAND & STRUCTURES						
700 GRANTS,CLAIMS,ETC.						
TOTAL		172.6	2,004.6	3,322.6	4,749.6	6,176.6

FUNDING (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

FULL TIME		2	16	30	44	58
PART TIME (Grad. Students)			4	8	12	16
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

Based on recommendations contained in The Report of the Alaska Fisheries Center Study Group to the State of Alaska (Feb. 1982), as modified by the University of Alaska after analysis of start-up and program costs.

IV. DATE 4/12/82 PREPARED BY TL for Donald H. Rosenberg
AGENCY University of Alaska
PHONE 474-7086 (AFCSG 586-1869)

Original: Legislative Finance
cc: Budget and Management
Prime Sponsor (First Legislator Named)

33-001 (Rev. 12/81)

April 8, 1982

Fiscal Note
HB313

FY83

ADMINISTRATION	
Personnel Services	
Executive Director (6 mos.)	$ 32,261
Executive Secretary (6 mos.)	10,629
Staff Benefits 22%	9,436
Total Personnel Services	$ 52,326
TRAVEL	
Administration	6,000
Board of Trustees (2 meetings)	6,300
Advisory Committee (1 meeting)	9,000
Total Travel	$ 21,300
CONTRACTUAL	
Facilities Planning	$ 50,000
Program Planning (consultants)	30,000
Communications	6,000
Copying and Printing	3,000
Miscellaneous	3,000
Total Contractual	$ 92,000
COMMODITIES	3,000
EQUIPMENT	4,000
Two desks/chairs, 2 side chairs, 3 file cabinets, typewriter, calculator, work table	
Total Cost (1st year)	$172,626

Fiscal Note
HB313

FY84, 85, 86 and 87

Increment to be added each year.

A. RESEARCH AND PUBLIC INFORMATION/LIBRARY PROGRAMS	
Personnel Services (includes benefits)	
Professional Staff (6) ($45,000)	$ 270,000
Technical Staff (4) ($30,000)	120,000
Graduate Research Assistants (4) ($12,000)	48,000
Total Personnel Services	$ 438,000
Travel	
In-state (research related)	25,000
Professional Meetings	5,000
Total Travel	$ 30,000
Contractual	
Computer Services	40,000
Vessel Charter	100,000
Analytical Services	50,000
Communication	50,000
Equipment Maintenance	50,000
Freight (equipment & samples)	20,000
Drafting and Duplicating	30,000
Space Rental	50,000
Total Contractual	$ 390,000
Commodities	50,000
Equipment*	
Library Collection	40,000
Scientific Equipment	300,000
Data Processing	35,000
Total Equipment	$ 375,000
TOTAL RESEARCH PROGRAM	$1,283,000
B. ADMINISTRATIVE	
Personnel Services (includes benefits)	
Support Staff (4) ($25,000)	$ 100,000
Total Personnel Services	$ 100,000

Travel	
In-State	10,000
Out of State	4,000
Total Travel	$ 14,000
Contractual	
Equipment Maintenance	10,000
Communication	20,000
Equipment Rental	30,000
Space Rental	200,000
Utilities	75,000
Space Maintenance/Renovation	50,000
Total Contractual	$ 385,000
Commodities	20,000
Equipment*	30,000
Office Equipment (desks, chairs)	
TOTAL ADMINISTRATION	$ 549,000

*Initial equipment cost; $300,000 total budgeted each year for administrative and research program combined.

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST
Bill/Resolution No. CS HB 313
Title Relating to the Alaska Fisheries Center
Requested by Senator Parr Date 3/10/82

II. FISCAL DETAIL
Agency Affected Fish and Game
Program Category Affected NRMEC
BRU, Program, Or Subprogram(s) Affected Office of the Commissioner
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS,CLAIMS,ETC.						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

FUNDING (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER (Specify Source)						
POSITIONS	-0-	-0-	-0-	-0-	-0-	-0-
FULL TIME						
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

No fiscal impact to this department

IV. DATE 3/10/82 PREPARED BY Janet Green
AGENCY Fish and Game
PHONE 465-4120

Original: Legislative Finance
cc: Budget and Management
Prime Sponsor (First Legislator Named)
33-001 (Rev. 12/81)

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST
Bill/Resolution No. CSHB 313(fin)
Title An Act relating to the Alaska Fisheries Center
Requested by Senator Parr Date 03-10-82

II. FISCAL DETAIL
Agency Affected Dept. of Administration
Program Category Affected General Government
BRU, Program, Or Subprogram(s) Affected Division of Administrative Services
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES	12.3	12.3	12.9	12.9	13.7	13.7
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES	.2	.2	.3	.3	.4	.4
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS,CLAIMS,ETC.						
TOTAL	12.5	12.5	13.2	13.2	14.1	14.1

FUNDING (Thousands of Dollars)

GENERAL FUND	12.5	12.5	13.2	13.2	14.1	14.1
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

FULL TIME						
PART TIME	.5	.5	.5	.5	.5	.5
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

Impact of the Alaska State Fisheries upon the Division of Administrative Services is expected to be limited to the fiscal section. The preparation and processing of grant and contract documents, combined with other general vendor payments, will require the services of a current part-time accounting position to become full-time.

IV. DATE 03-10-82 PREPARED BY [signature]
AGENCY Dept. of Administration
PHONE 465-2277

Original: Legislative Finance
cc: Budget and Management
Prime Sponsor (First Legislator Named)
33-001 (Rev. 12/81)

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST

Bill/Resolution No. HB 313 (Page 1 of 2) CORRECTED FISCAL NOTE

Title An act relating to the Alaska Fisheries Center

Requested by House Resources Date 4/22/81

II. FISCAL DETAIL

Agency Affected Department of Administration

Program Category Affected Development

BRU, Program, or Subprogram(s) Affected Alaska Fisheries Center

(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

		FY 81	FY 82	FY 83	FY 84	FY 85	FY 86
100	PERSONAL SERVICES		68.0				
200	TRAVEL		45.9				
300	CONTRACTUAL		302.7				
400	COMMODITIES		.5				
500	EQUIPMENT		1.1				
600	LAND & STRUCTURES						
700	GRANTS, CLAIMS, ETC.						
	TOTAL		418.2				

FUNDING (Thousands of Dollars)

GENERAL FUND		418.2				
FEDERAL FUNDS						
OTHER (Specify Fund Source)						

POSITIONS

FULL TIME		1				
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instructions, Section III)

IV. DATE 5/20/81

PREPARED BY Elmer Lindstrom, Fiscal Analyst

AGENCY Legislative Finance Division

PHONE 465-3795

Original: Legislative Finance
cc: Budget and Management
Prime Sponsor (First Legislator Named)

33-001 (Rev. 12/80)

FISCAL NOTE: HB 313 (Page 2 of 2) CORRECTED FISCAL NOTE

Personal Services

Interim Director $4500/mo. +26% benefits x 12		68.0

Travel

Administrative Travel:		
9 trips x $300/trip transportation	2.7	
9 trips x $60/day x 2 days	1.1	
Board Travel: (Assumes 5 public members & 4 state employee members)		
9 trips x $300/trip transportation x 5	13.5	
9 trips x $150/day x 2 days x 5	13.5	
9 trips x $300/trip transportation x 4	10.8	
9 trips x $60/day x 2 days x 4	4.3	
Total Travel		45.9

Contractual

Facilities design and support	300.0	
Office space, 150 sq.ft. x $1.50/sq.ft./mo. x 12 months	2.7	
Total Contractual		302.7

Commodities	.5
Equipment: 1 ea: desk, chair, file cabinet, calculator	1.1
TOTAL.	$418.2

University of Alaska
Fairbanks, Alaska

April 14, 1982

Senator Charles H. Parr
Chairman, Senate HESS Committee
Pouch V
Juneau, Ak 99811

Dear Charlie:

On March 10, 1982, I testified at your committee hearings on behalf of the University of Alaska on Committee Substitute for House Bill 313 to establish an Alaska Fisheries Center. Following is a brief outline of that testimony.

1. The University is pleased that the report of the Alaska Fisheries Study Group has recommended that the Center be established within the University of Alaska. The University has demonstrated its commitment to long term basic and applied research in fisheries and in communicating the products of that research to the Alaskan fisheries industry, to policy makers, to the scientific community, and the general public.

2. The University believes that the center would have to implemented in such a manner within the University so that it can be a truly cooperative research entity involving other research agencies and groups outside and within the University. In that regard, the University would need to modify its plan for improvement of fisheries programs to take into account this expanded responsibility in the area of fisheries research.

3. The University administration has reviewed the proposed Fisheries Center legislation and encourages its passage. The Board of Regents has informally indicated its willingness to accept the Center should it be offered by the legislature. Implementation of the Center and its programs could only be accomplished within the University's fiscal and facilities constraints.

4. The University concurs with the Study Group's recommendation that start-up funding only be provided this year. The University will, under such funding, provide a plan by next year for the full integration and implementation of the proposed center into the structure and programs of the University. Until that time, the University would administer the Center under the Office of the President.

Sincerely,

George C. West
Vice President for
Academic Affairs

tr
WP3DWEST

The Alaska Fishing Industry

An Overview of State Expenditures and Economic Benefits

House Research Agency
Alaska State Legislature
January 1982

House Research Agency Report 81-4

The House Research Agency is the permanent, non-partisan research support arm of the Alaska State House of Representatives. The agency performs research at the request of legislators. A bipartisan governing committee composed of the House Speaker and Minority Leader and the ranking House member of the Legislative Council (i.e., either chair or vice-chair), oversees the agency's work. While the legislature is in session, most research is of a discrete scope. During the interims between legislative sessions, projects of larger scope are undertaken.

THE ALASKA FISHING INDUSTRY

An Overview of State Expenditures and Economic Benefits

Jack Kreinheder
David Teal
House Research Agency
Alaska State Legislature
January 21, 1982

House Research Agency Report 81-4

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INTRODUCTION

The Alaska fishing industry in 1979 employed over 44,000 people, more than any other industry. The value of 1979 fisheries harvests to the fishermen was $654 million, with a wholesale value of $1.12 billion. The 1981 salmon harvest is forecast to be the largest in history -- 135 million fish. In addition to providing employment and income to fishermen and processing workers, the fishing industry also provides jobs to workers in transportation, the services industry, and other segments of the economy.

Taxes and fees levied on the fishing industry generated over $28 million in State revenues in FY 81, plus revenues to local governments in the form of property and sales taxes. In recent years, the value of the fishing industry has been eclipsed to some extent by Prudhoe Bay petroleum development and corresponding increases in State revenues and expenditures. However, the rapid economic expansion resulting from oil development has also highlighted the value of the fishing industry, particularly in future years, as a renewable and sustainable source of revenue, income and employment.

In an effort to expand Alaska's renewable resource base, the legislature has made substantial appropriations for a number of fisheries programs in the past several years. The Governing Committee of the House Research Agency directed the agency to prepare the following report in order to document State expenditures related to commercial fishing, and to evaluate the benefits provided to Alaska's residents by the fishing industry.

The expenditures addressed in this report include those for:

- Fisheries management and regulation enforcement;
- Aquaculture and fisheries rehabilitation and development projects;
- Fisheries development and seafood marketing programs;
- Loan programs for vessels, permits and hatchery construction; and
- Capital appropriations (including general obligation bonds).

Among the economic benefits of the fishing industry are:

- Employment and income from fish harvesting, processing, support industries, and multiplier effects.

- Tax revenues to State and local governments (raw fish tax, corporate income taxes, property and sales taxes).

The report includes expenditures for fiscal years 1978-1982 and fisheries production and value statistics for calendar years 1977-1981, where available. Employment and income information, which is not recorded on a regular basis for all sectors of the fishing industry, is presented for the most recent year(s) available, primarily 1979.

SUMMARY OF FINDINGS

Commercial Fisheries Expenditures

State appropriations for programs related to commercial fishing totalled about $120 million in FY 1982. This represents a 195 percent increase from the FY 1978 expenditures for these programs of $40.8 million. Based on the grouping of fisheries programs into four broad categories, FY 1982 appropriations were distributed as follows:

- Fisheries Financing Programs - $56.3 million
- Management and regulation - $30.5 million
- Fisheries Development and Marketing Expenditures $24.1 million
- Capital improvements - $ 8.8 million

The operating budget for fisheries programs increased by about 145 percent from FY 78 to FY 82, from about $22.3 million to $54.6 million. This increase is nearly identical to the 142 percent increase in the total State operating budget over the same period. Fisheries expenditures therefore remained a similar fraction of the total budget -- about 2.2 percent.

The substantial growth in commmercial fisheries expenditures over the past five years is a result of both the establishment of new programs and the expansion of existing ones. The most significant new fisheries programs created since 1978 are in the financing, and development and marketing categories. These include the Commercial Fishing and Agriculture Bank, the Alaska Renewable Resource Corporation, the Fish Processing Loan Guarantee Account, and the Alaska Seafood Marketing Institute. Expenditures and appropriations for these four programs totalled nearly $100 million from FY 80 to FY 82. Among fisheries programs existing as of 1978, the ones which account for the largest share of the total increase in expenditures through FY 82 are the Division of Commercial Fisheries, the Division of Fish and Wildlife Protection, and the Division of Fisheries Rehabilitation, Enhancement, and Development (FRED).

State Revenues

State revenues from taxes and fees levied on the fishing industry totalled about $28.2 million in FY 1981. Nearly 75 percent of these revenues, or $20.7 million, were generated by the fisheries business tax levied on the sale of raw fish to processors. Permit, vessel, and license fees contributed an additional $3.9 million, and the marine fuel tax, corporation income tax, and other taxes made up the remaining $3.6 million. Municipal property and sales taxes derived from the fishing industry and the municipal raw fish taxes in the Bristol Bay Borough

and Unalaska are also an economic benefit, but these taxes have not been calculated here.

Fisheries revenues were less than one percent of total State receipts in FY 81, with oil revenues providing nearly 90 percent of the total. In terms of non-petroleum income, fisheries revenues were about 7 percent of the total, and were the third largest revenue source, behind investment earnings and the corporation income tax. The percentage of total State receipts contributed by fisheries revenues has declined with the expansion of the Alaskan economy and the recent influx of oil revenues. However, fisheries revenues have risen by 107 percent since FY 1978, as a result of tax increases in 1979 and the increasing value of fisheries harvests.

The $28.2 million collected in fisheries revenues in FY 1981 obviously covers only a small part of the $132 million expended for fisheries programs in that year. However, simply comparing the expenditure and revenue figures does not provide an accurate or meaningful measure of the value of State fisheries programs. For one thing, nearly $73 million, or more than half of the FY 81 appropriations were for loan programs. All or nearly all of these funds will be repaid to the State, though some cost is incurred in the form of foregone interest earnings on low-interest loans. It is also important to consider the revenues generated by other industries benefited by State expenditures, the income and employment benefits of the fishing industry, and other factors.

Many State programs have been enacted to stimulate or develop Alaskan industries which provide little if any direct revenues to the State treasury. The rationale for such expenditures has generally been the creation of jobs for Alaskans and/or the development of a broader and more self-sustaining economy, rather than the establishment of a source of State revenues. The fishing industry is actually somewhat unusual in that a significant portion of State expenditures for the industry are covered by taxes and other fees levied and collected by the State.

Many of the State's fisheries expenditures, such as the aquaculture program, marketing efforts, and some fisheries loans are investments to increase future harvest levels and product values. It can therefore be somewhat misleading to compare present expenditures to current State revenues, harvests, and employment levels. A thorough evaluation would require an assessment of projected increases in fisheries benefits in future years for each program, relative to current expenditures.

An additional consideration is that Alaska's fisheries management expenditures are substantially lower relative to the value of its fisheries and State revenues than for other states. Washington and Oregon spent about 43 cents and 19 cents, respectively, on management programs for every dollar of wholesale fisheries value in FY 81, while

Alaska spent only about 3 cents. Alaska meets roughly 90 percent of its management expenditures through fisheries revenues, while Washington covers about 25 percent of its expenditures from fisheries revenues and Oregon 20 percent.

A thorough benefit/cost analysis of Alaska's fisheries expenditures is beyond the scope of this report, but these points demonstrate that it is important to consider more than just the balance between revenues and expenditures in evaluating fisheries expenditures.

Fisheries Employment and Income

Combined peak employment in seafood harvesting and seafood processing was over 44,000 in 1979, which made the seafood industry Alaska's largest private sector employer in terms of peak monthly employment. The seafood industry's characteristic seasonal fluctuations in employment reduced average monthly employment in 1979 to 15,500, which made the seafood industry Alaska's third largest employer in terms of average employment.

Peak monthly employment in seafood harvesting in Alaska was over 29,000 in 1979. Salmon fishing accounted for roughly 75 percent of harvesting jobs, other finfish harvesting for 17 percent, and shellfish for the remaining 8 percent. In terms of peak monthly employment, seafood harvesting was the third largest private sector employer behind the service and trade sectors.

Monthly employment in the seafood processing industry ranged from 2,700 to 15,000. The Cook Inlet region reported the highest peak employment in the state -- 3,678 jobs, or about 25 percent of total statewide peak processing employment -- although the Aleutian and Kodiak regions had higher annual average employment because of fall and winter shellfish processing operations. Much of the Cook Inlet employment, particularly in Anchorage, is a result of the transportation of fish from Bristol Bay, Bethel, and other areas to Anchorage and Kenai Peninsula processors for freezing and fresh fish shipments. The importance of this processing pattern is shown by the fact that only 5 percent of the total value of the 1979 statewide harvest was landed in the Cook Inlet region, yet the region had 15 percent of the statewide processing payroll and 25 percent of the peak employment. About one-quarter of the Cook Inlet processing jobs were in Anchorage, with the remainder located primarily in Kenai, Seward and Homer.

Statewide average annual employment in seafood processing was 7,272 in 1979, or 4.4 percent of total employment. About 25 percent of harvesting employees provided permanent addresses outside the state. Based on unemployment insurance data, approximately 47 percent of processing workers reside outside Alaska.

The 1979 harvest value to fishermen for all fisheries was $654 million, with a first wholesale value of about $1.13 billion. Ex-vessel values for 1980 and 1981 were estimated to be in the $600 million range. Net income in the seafood harvesting sector in 1979 is estimated at over $300 million, or approximately nine percent of all wages and salaries reported in Alaska in 1979. Approximately 60 percent of harvesting income went to fishermen and crew members who claimed a permanent address within the state.

The average earnings of seafood processing employees was $6,150 in 1979. More than half of processing workers earned under $4,000 and over 80 percent of processing workers reported no other income outside the processing industry. Total income in the seafood processing industry was about $110 million in 1979, or three percent of total income in the state.

A computer model of the Alaskan economy, maintained by the Division of Budget and Management in the Office of the Governor, shows that about 28 additional jobs in other sectors result from each 100 jobs created in the processing industry. Sectors most affected by increases in processing employment are services (which include fuel and maintenance facilities), transportation, and government. The model also shows that each $100 of additional income in the seafood processing sector produces $84 of income in other sectors of the Alaskan economy. These employment and income multipliers are long-term factors, and assume a developed infrastructure base. Major expansions or new development of processing plants in small communities may require additional support facilities, and therefore result in higher short-term multiplier effects.

Future Development Prospects

The future trends in fisheries harvests and values are a matter of some debate, with projections ranging from substantial declines in values, to equally substantial increases. The fishing industry is presently facing a number of serious problems, including high interest rates, poor markets and prices for seafood products, and increasing production costs. These problems may continue to impede the development of the fishing industry in the future. However, there are a number of mid- to long-term prospects for substantial increases in the size of the fishing industry. Among the most significant of these possible developments are the following:

1. Increased harvest levels, primarily of salmon, through the further development of aquaculture facilities and improvements in propagation techniques, disease control, and other factors.

2. Greater demand, and higher prices for Alaskan seafood products through marketing efforts of the Alaska Seafood Marketing Institute and other programs.

3. Higher levels of participation by Alaskans in groundfish harvesting and the utilization of presently unfished species.

4. Increases in harvests resulting from improved management capabilities, based on advances in technology and/or higher funding levels, thus allowing more accurate control of harvest and escapement levels.

5. Higher employment and value added from increased in-State processing and cold-storage capabilities.

STATE EXPENDITURES FOR COMMERCIAL FISHERIES PROGRAMS

The State of Alaska funds a number of programs which affect various aspects of the commercial fisheries, ranging from education to marketing of fish products. The most significant programs, in terms of expenditures, are for fisheries management, regulation, and enforcement; fisheries development; financing programs; and infrastructure development. Table 1 on the following page shows the primary current functions of the State government with respect to commercial fishing, and the programs or divisions responsible for these functions.

Historical Overview

During the early years of Statehood, expenditures for commercial fishing functions were directed almost entirely to management and regulation of the fisheries. Fisheries management under the federal government before Statehood was generally perceived as inadequate, and the new State government increased funding for stock management purposes in an effort to improve control over escapement and harvest levels. The Fish and Wildlife Protection budget was also increased substantially to improve the enforcement of fisheries regulations.

Figure 1 displays territorial and State expenditures from FY 1959 to FY 1981 for the Division of Commercial Fisheries and the estimated portion of the Division of Fish and Wildlife Protection budget targeted to enforcement of commercial fisheries regulations (about 42%, based on current expenditure breakdowns). This graph is intended to provide an indication of general expenditure trends for these commercial fisheries programs, rather than a precise tabulation of actual expenditures. More detail on these expenditures in recent years is provided later in this section.

The increased emphasis of the new State government on commercial fisheries management and regulation enforcement is readily seen in the difference between the territorial and State expenditures in Figure 1. State expenditures for these programs in FY 1960 were $664,000, over five times more than the $125,000 expended by the territorial government in its last year of operation. The State continued to increase expenditures gradually for management and enforcement purposes during the 1960's, but even these basic expenditures were constrained by the limited financial resources of the State. As the State's financial position improved in the late 1960's and early 1970's, expenditures for fisheries management and protection increased and new programs were begun to further develop the fisheries and to improve fishing employment and income opportunities for Alaska residents.

TABLE 1

STATE OF ALASKA COMMERCIAL FISHERIES PROGRAMS*

FUNCTION	MAJOR PROGRAMS
Management and regulation of stocks	Division of Commercial Fisheries Fish and Game Vessels Board of Fisheries
Enforcement of regulations	Division of Fish and Wildlife Protection
Fisheries development (biological) and habitat protection	Division of Fisheries Rehabilitation, Enhancement and Development Division of Habitat
Management of participation levels and licensing/permit renewal for fishermen, vessels, and crew	Commercial Fisheries Entry Commission Department of Revenue
Financial Assistance	Division of Business Loans Commercial Fishing and Agriculture Bank Alaska Renewable Resources Corp. Fish Processor Pack Loans
Infrastructure Development	Department of Transportation and Public Facilities Department of Community and Regional Affairs
Fisheries planning, research, marketing, technical assistance and education	Office of Fisheries Development (Dept. of Commerce and Economic Development) Alaska Seafood Marketing Institute State of Alaska Asian Office Sea Grant Program and Marine Advisory Program (University of Alaska) International Fisheries and External Affairs (Governor's Office)

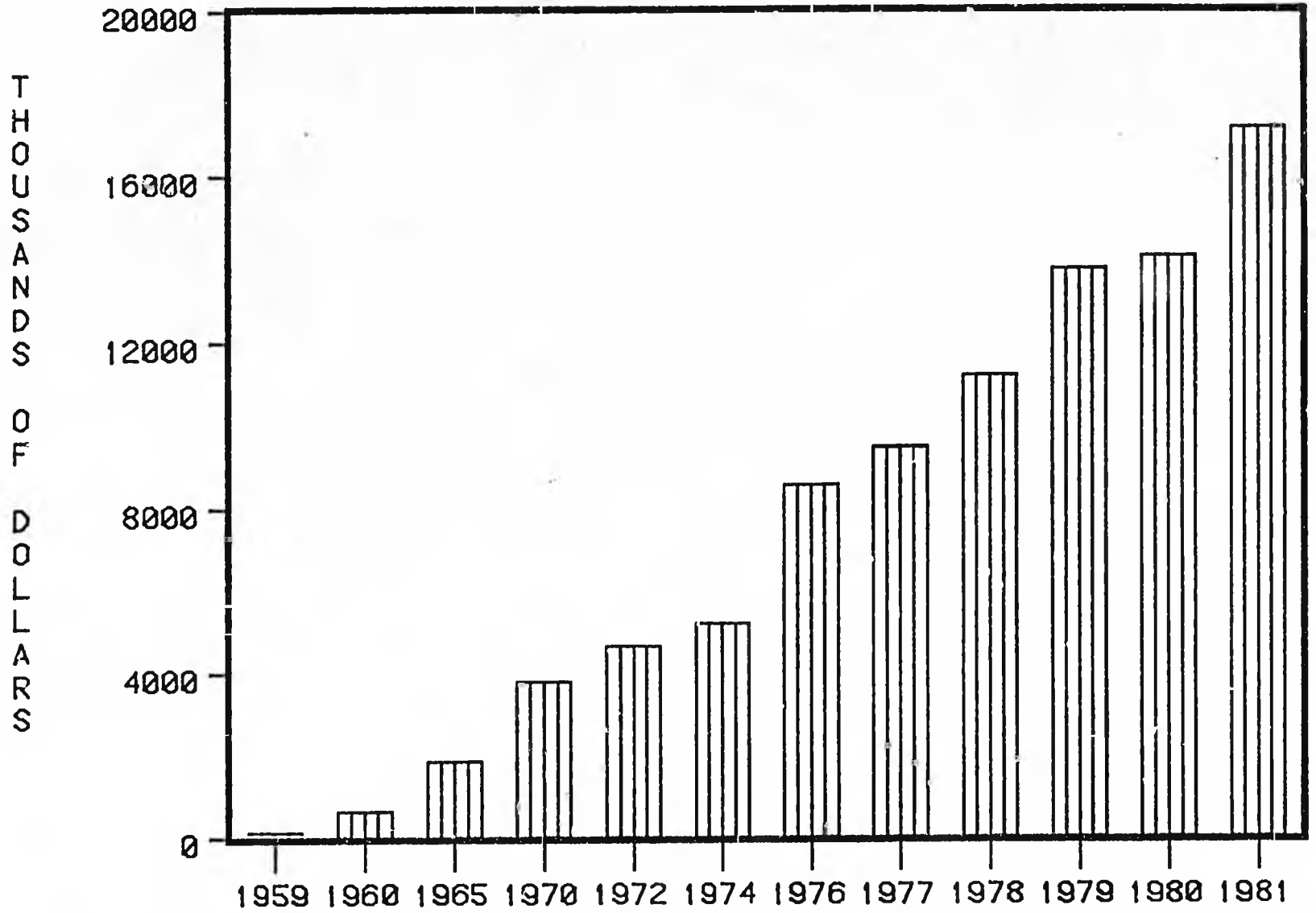
* A number of other State programs do some fisheries-related work. For a more complete program listing and additional detail on program responsibilities, see appendix A.

1/20/82

FIGURE 1

STATE FISHERIES EXPENDITURES*

FY 1959 - 1981



* Includes only expenditures for the Division of Commercial Fisheries and Div. of Fish and Wildlife Protection.

Most of the increase in expenditures since 1970 shown in Figure 1 is attributable to a combination of expanded program functions for the Division of Commercial Fisheries and the Division of Fish and Wildlife Protection, and a high rate of inflation. The value of the dollar decreased by more than 50 percent between 1970 and 1981, so that the FY 81 expenditures of $17.2 million shown in Figure 1 would only be about $7.9 million in terms of 1970 dollars. In other words, about $9.3 million of the increase over the decade has been for cost increases resulting from inflation.

Management Programs

The establishment of the Division of Fisheries Rehabilitation, Enhancement, and Development (FRED) in 1971 marked the beginning of a major effort to increase the population stocks of salmon and other fish species in Alaska. The construction of fish hatcheries has been the principal technique employed to meet this objective, but additional programs, including fish ladder construction, rehabilitation and enhancement of spawning habitats, and lake fertilization have also been undertaken. Operating expenditures for the FRED Division and the related hatchery program have increased from $1.1 million in FY 72 to $9.7 million in FY 81 as the program expanded. Roughly 75 percent of FRED operating and capital expenditures have been targeted to commercial fisheries development, with 25 percent benefitting sport fishermen, and to a minor extent, subsistence users.[1]

The limited entry program was enacted in 1973 through the creation of the Commercial Fisheries Entry Commission (CFEC). The program was begun in response to rapidly increasing numbers of fishermen, the resulting decline in adequate economic returns to fishermen, and the difficulty of managing the fisheries properly with the increasing levels of participation. All of the state's salmon fisheries have now been placed under limited entry, together with several herring fisheries. Expenditures for CFEC functions increased from $566 thousand in FY 74 to $1.6 million in FY 81. Part of this increase reflects the transferral of vessel licensing responsibilities from the Department of Revenue to the CFEC in 1978.

Development and Financing Programs

In addition to these fisheries management programs, a number of development-oriented programs were established in the 1970's. These include the Commercial Fisheries and Agriculture Bank, the Alaska Renewable Resources Corporation, the Alaska Seafood Marketing Institute, and

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[1]Source: Estimate by Robert Roys, Director of FRED, Personal Communication, 1/4/82

several financing programs administered by the Division of Business Loans.[2] The first of these programs was created by the Commercial Fishing Loan Act in 1972 (AS 16.10.310), and was established for the purpose of financing the repair or upgrading of vessels, the purchase of limited entry permits, and the construction and purchase of new vessels. Under this program, a loan of up to $500,000 may be obtained for a term of 15 years, at an interest rate of 9.5 percent.

The Fisheries Enhancement Loan Program (AS 16.10.500) was enacted by the 1976 legislature and subsequently amended in 1977, 1979 and 1980. This program was established to provide long-term, low interest loans for the planning, construction, and operation of fish hatcheries and for other fisheries enhancement activities. Loan amounts may be up to $6 million for regional aquaculture associations and $1 million for other nonprofit hatchery corporations, with an interest rate of 9.5 percent and a term of 30 years. The statute also authorizes the payment of grants to qualified regional aquaculture associations for organizational and planning purposes.

In 1980, the Fishermen's Mortgage and Note Program (AS 16.10.650) was created to make financing available to fishermen who are economically dependent on commercial fishing and do not qualify for other state or private loan programs. The purposes for which loans may be used under this program are similar to the Commercial Fishing Loan Program described earlier; however, this program operates through the purchase by the State of mortgages or notes financed by private lending institutions, rather than direct State financing. Loans can be up to $200,000 in value and 15 years in duration.

The Commercial Fishing and Agriculture Bank (CFAB) was created in 1978 (AS 44.88.010), but did not begin public operations until April of 1980. CFAB was designed as a cooperative bank to provide loans to Alaska residents engaged in agriculture and fishing, including harvesters, processors, suppliers, and marketers. The bank was originally established as a public corporation within the Department of Commerce and Economic Development, but was redesignated in 1981 as a private cooperative bank which also serves a public purpose. This change was made in order to clarify the bank's status and to improve CFAB's access to loan funds.

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[2]More detailed information on fisheries financing programs than the brief summaries given here can be found in Summary of Reports Submitted by State Loan Programs, House Research Agency, April 1981; and Summary of State Lending and Investment Programs, Division of Legislative Audit, March, 1981.

The Alaska Renewable Resources Corporation (ARRC) was also established by the legislature in 1978 (AS 37.12.010). ARRC was intended to provide a source of capital for Alaska-based firms engaging in renewable resource development or utilization, including research and marketing efforts. ARRC may either loan funds directly to borrowers or guarantee loans made through private lending institutions. In the 1981 session, the legislature appropriated only operating expenses for maintaining existing investments to ARRC; no funds for new investments were appropriated. The future of the corporation appears uncertain at this point.

The primary purpose of the Alaska Seafood Marketing Institute (ASMI), established in 1981, is to promote the sale and consumption of all types of seafood harvested in Alaska's commercial fisheries. ASMI was originally created as a private, nonprofit organization in 1980, called the Alaska Seafood Foundation, but was redefined by the 1981 legislature as a public corporation of the State under the Department of Commerce and Economic Development. Initial funding was primarily from State appropriations, with some federal funds and processor dues; in FY 83 and subsequent years, marketing assessments on seafood processors are to fund at least part of the Institute's activities.

Recent Expenditure Trends - FY 1978-82

Before discussing in detail the recent trends in State fisheries expenditures, it is important to point out that some of these expenditures are difficult to isolate. A number of programs provide benefits to other industries, groups, or individuals in addition to the commercial fishing industry, and the program budgets do not separate the expenditures by industry or group served. For example, the hatcheries operated by the FRED Division release fish which are caught by sport and subsistence fishermen, as well as commercial harvesters. The Division of Fish and Wildlife Protection enforces not only commercial fishing laws and regulations, but also those for game hunting and other fish harvesting. Other programs which involve functions not entirely related to commercial fishing include the Division of Habitat, the Board of Fisheries, CFAB, ARRC, and the State's foreign offices.

In spite of these difficulties in separating commercial fishing expenditures from some program budgets, we were able to obtain reasonable estimates of fisheries expenditures from program administrators or staff. While useful for the purposes of this report, these estimates are approximate and should not be misconstrued as actual expenditures.

Capital projects such as harbor developments are particularly difficult to evaluate with respect to commercial fisheries benefits. While fishermen and processors are major harbor users, nearly every resident of a community or region may benefit to some extent from improved freight transportation or recreational boating advantages resulting from such developments. In addition, the cost of such capital improve-

ments represents benefits to users throughout the life of the project, not just in the year of completion.

No reasonable means of allocating the benefits of all capital projects to the commercial fishing industry could be determined in the scope of this study. Therefore, those capital appropriations which are clearly targeted to commercial fishing, such as hatcheries and patrol vessels, have been separated in Table 6 from more general projects such as harbors and airports.

The total commercial fishing spending figures in Table 2 include only appropriations for hatcheries and other fisheries-specific projects. The more general appropriations for harbors, airports, etc. have not been included in Table 2. These more general capital expenditures benefit other users as well as commercial fishermen, so including them in the total spending figures would overstate fishing expenditures. The general capital appropriations are listed in Table 6 simply to provide an indication of recent expenditure trends for such projects.

In this section, State expenditures for commercial fisheries purposes are divided into four broad groups: (1) regulation and management; (2) fisheries development and marketing; (3) State financing assistance; and (4) Capital project expenditures. Table 2 summarizes State expenditures (or appropriations) for each of these program categories. Detail on the specific program expenditures for each of these categories is provided in Tables 3 through 6.

Expenditure Summary

Total commercial fisheries expenditures for all program categories increased from $40.8 million in FY 1978 to a peak of $132 million in FY 1981, and declined to $119 million (appropriated) in FY 1982 (see Table 2, following page). The largest budget increases were for the fisheries financing and fisheries development expenditure categories, as shown numerically by Table 2 and illustrated graphically by Figure 2. Regulation and management expenditures increased over the five-year period at a fairly even rate, while capital appropriations, including general obligation bonds for aquaculture and other fisheries facilities and equipment, were highest in FY 1979 and declined in subsequent years.

TABLE 2

SUMMARY OF COMMERCIAL FISHERIES EXPENDITURES
FY 1978 - 1982
(Thousands of Dollars)

Program Category	1978	1979	1980	1981	1982
Regulation and Management Expenditures	$14,900	$18,074	$19,290	$24,227	$30,519
Fisheries Development and Marketing Expenditures	7,361	11,091	12,283	17,049	24,114
OPERATING BUDGET SUBTOTAL	22,261	29,165	31,573	41,276	54,633
Fisheries Financing Programs	15,909	30,680	56,263	72,772	56,345
Capital Appropriations (Fisheries-Specific)	2,652	38,268	484	18,073	8,817
TOTAL EXPENDITURES	$40,822	$98,113	$88,320	$132,121	$119,795

In terms of total expenditures, both over the five-year period and in FY 82, fisheries financing programs were the largest spending item, comprising about $231 million, or 35 percent of the $658 million five-year total (see Table 2). Although this $231 million will be returned to the State treasury through loan repayments, it represents a real cost to the State in terms of foregone earnings and the dedication of revenues to revolving loan funds. Management expenditures ranked second, followed by development and marketing expenditures and capital appropriations. The capital appropriations figures would be substantially higher if it were possible to include the additional expenditures listed in Table 6 which also benefit the fishing industry.

Figure 3 illustrates how the State's fisheries dollars were divided among the different program categories in FY 82. Major programs have been broken out from each category to demonstrate their significance.

FIGURE 2

COMMERCIAL FISHERIES EXPENDITURES

FY 1978 - 1982

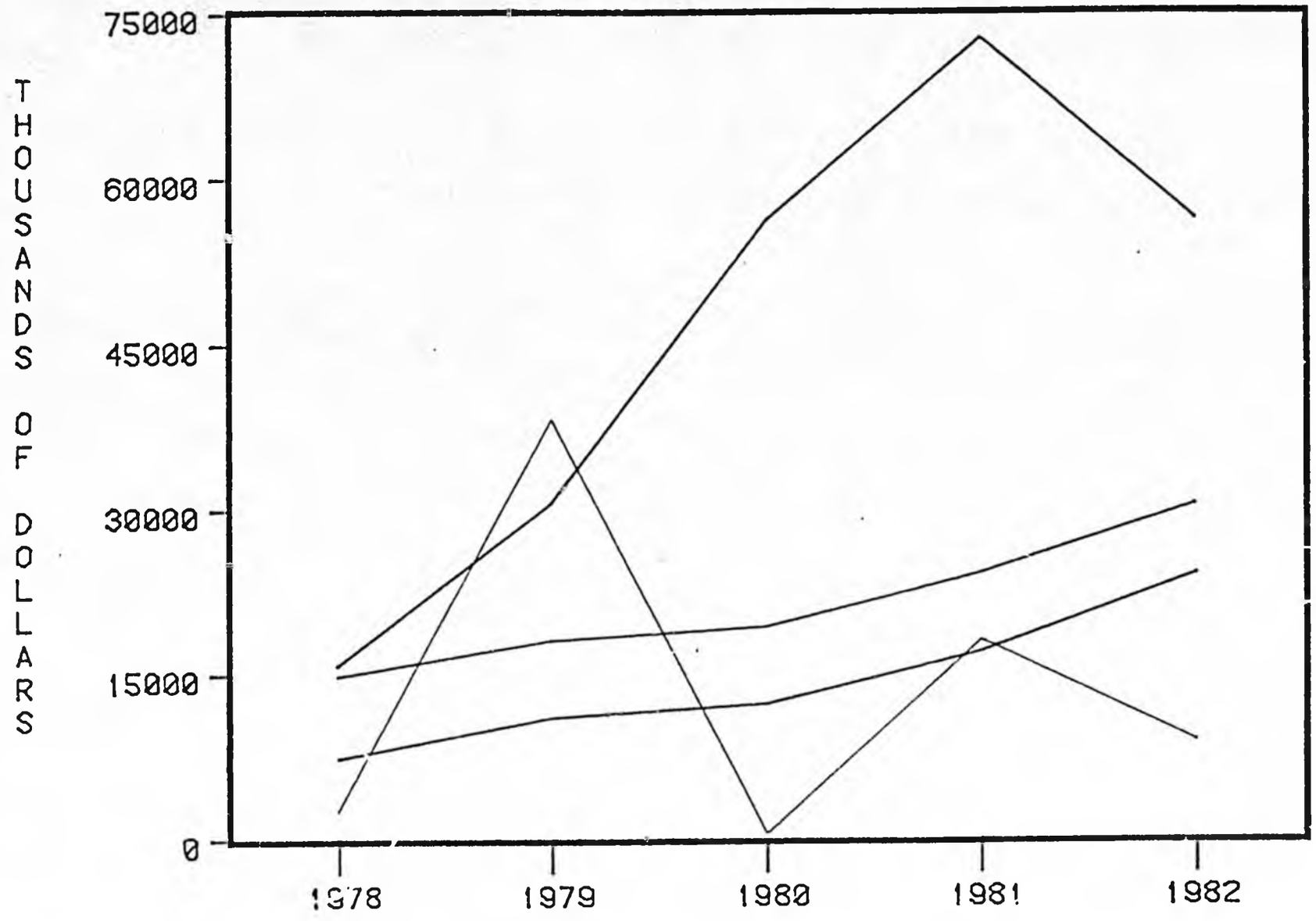
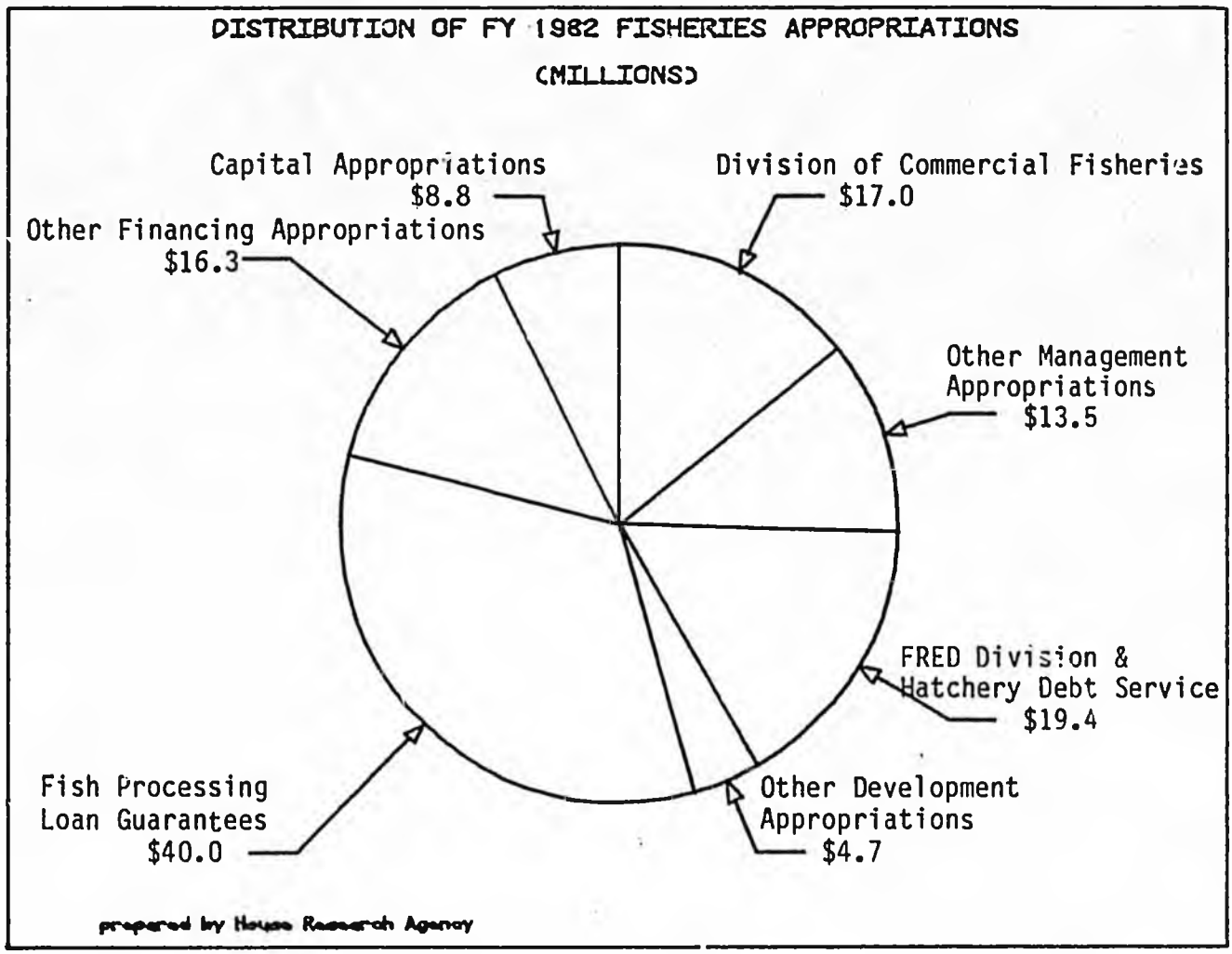


FIGURE 3



Operating Expenditures - Tables 3 and 4

The operating budget for commercial fisheries programs increased by about 145 percent between FY 78 and FY 82, from $22.3 million to $54.6 million. For purposes of comparison, the total State operating budget rose from about $1.0 billion in FY 78 to $2.4 billion in FY 1982, for an almost identical increase of 142 percent. Thus, commercial fisheries operating expenditures remained approximately the same fraction -- 2.2 percent -- of the total State budget over this five-year period.

The average annual increase in commercial fisheries operating expenditures was about 25 percent. Regulation and management expenditures rose from $14.9 million to $30.5 million over the five-year period, an increase of 105 percent. Fisheries development and marketing expenditures grew by 228 percent, from $7.4 million to $24.1 million, as a result of the establishment of new programs and the expansion of existing development programs.

Most of the increase in fisheries regulation and management expenditures was for the Division of Commercial Fisheries and the Division of Fish and Wildlife Protection. In the fisheries development and marketing category, the most significant expenditure increases were for the FRED Division, debt service on FRED aquaculture facilities, and the establishment and expansion of the Alaska Seafood Marketing Institute.

Financing Programs - Table 5

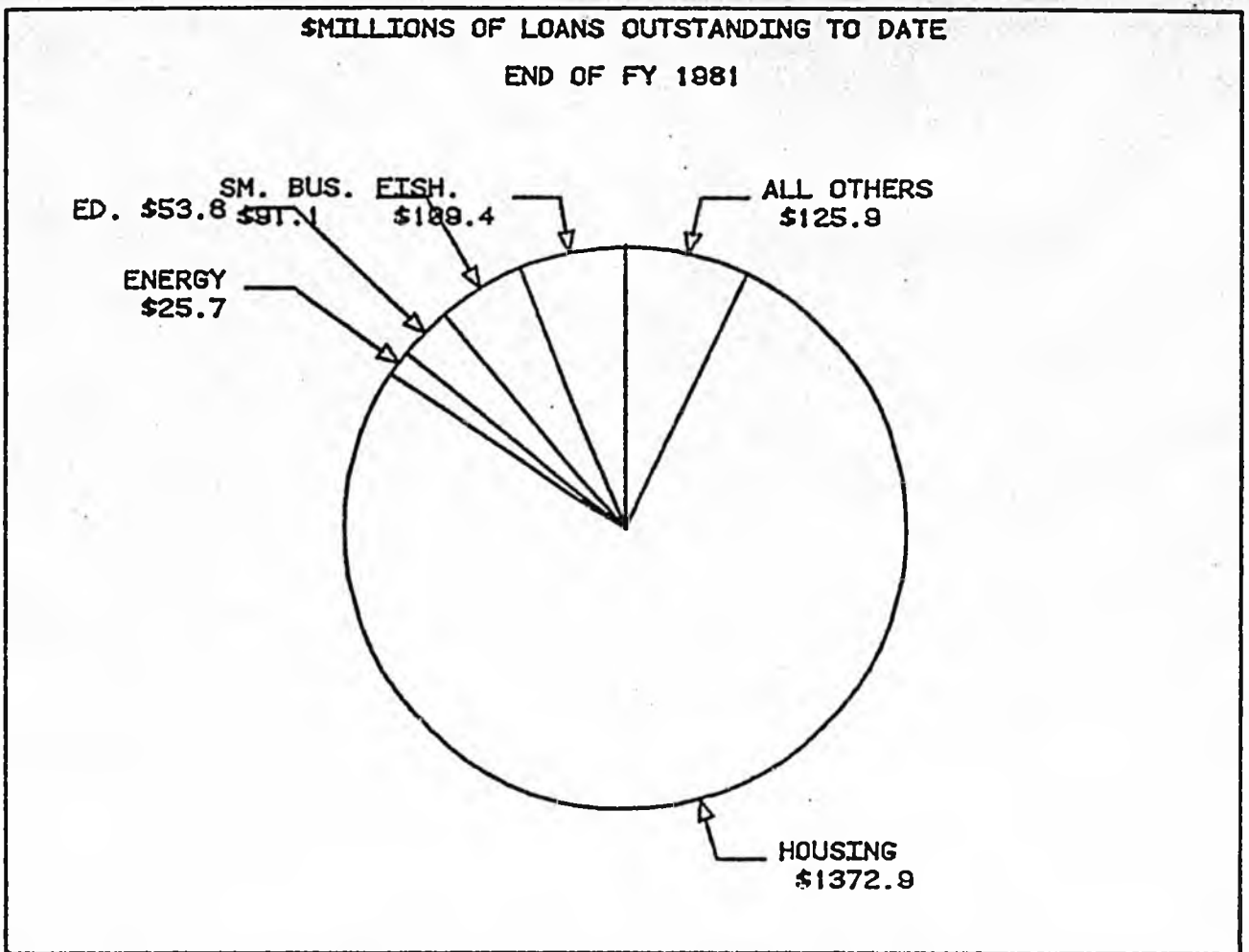
In FY 1978, the only State fisheries financing programs in operation were the commercial fishing loan program and the fisheries enhancement loan program. Expenditures for these two programs in FY 78 totalled about $15.9 million. In FY 80, about 17.1 million was appropriated for capitalization of the Commercial Fisheries and Agriculture Bank, with an additional $5.4 million for the Alaska Renewable Resources Corporation. Together with a large increase in the value of commercial fishing loans, these appropriations raised FY 80 spending for fisheries financing programs to about $56.3 million.

Financing appropriations reached a peak in FY 81 at 72.8 million, $15 million of which was for the newly established fishery product revolving loan fund in the Department of Revenue. In FY 82, CFAB and ARRC received no additional loan funds, and there was a substantial decrease in the commercial fishing loan program appropriation. However, the fish processing loan guarantee account received an appropriation of $40 million. Total fisheries financing appropriations for FY 82 were $56.3 million.

It is important to consider that the appropriations for these financing programs will eventually be returned to the State through repayment of outstanding loans. However, most of these programs are revolving loan funds in which money received from loan payments is recycled into new loans. Therefore, from the point of view of alternative uses of State funds, these loan appropriations are essentially committed for use in fisheries loans as long as the programs continue. The subsidized interest rates for several of the loan programs also represent a cost to the State in terms of foregone interest revenues. It is not possible to fully develop these points in this paper, but they are important considerations.

Figure 4 on the following page shows in pie-chart form the value and number of State fisheries loans outstanding as of June 1981, relative to other State loan programs. Fisheries loans of all types totalled about $110 million, or 6 percent of the total value of all loans of about $1.8 billion. In terms of the number of loans, fisheries loans were about 2.4 percent (1,569) of the 65,590 outstanding loans at that time.

FIGURE 4


$MILLIONS OF LOANS OUTSTANDING TO DATE
END OF FY 1981
ED. $53.8
SM. BUS. FISH. $91.1
$109.4
ALL OTHERS $125.9
ENERGY $25.7
HOUSING $1372.9

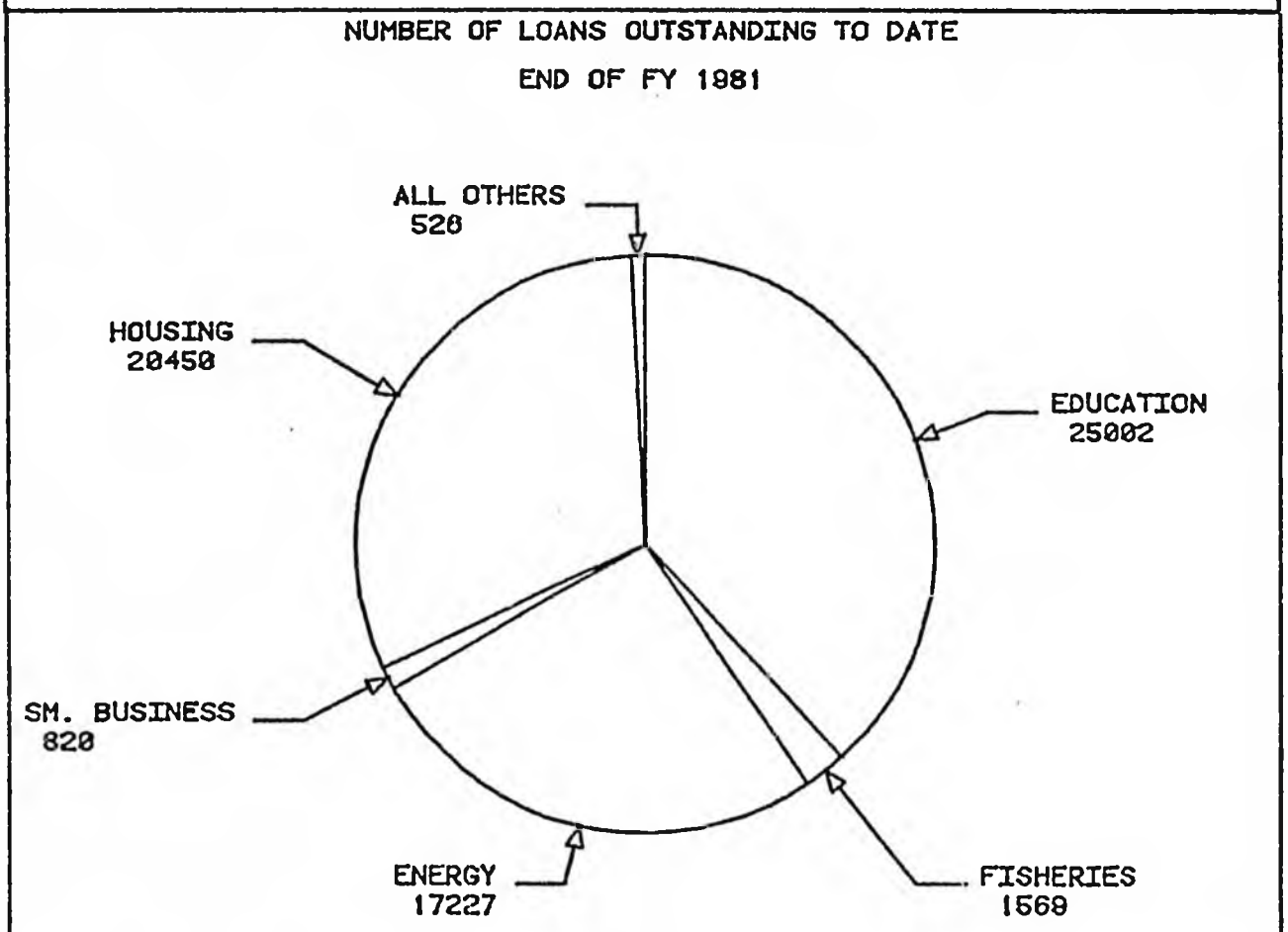

NUMBER OF LOANS OUTSTANDING TO DATE
END OF FY 1981
ALL OTHERS 528
HOUSING 20450
EDUCATION 25002
SM. BUSINESS 820
ENERGY 17227
FISHERIES 1569

TABLE 3

COMMERCIAL FISHERIES REGULATION AND MANAGEMENT EXPENDITURES[1]
FY 1978 - 1982
(Thousands of Dollars)

Program	1978	1979	1980	1981	1982
Department of Fish and Game					
Division of Commercial Fisheries	$8,363	$10,458	$10,638	$13,106	$17,003
Division of Habitat Protection*[2]	374	748	752	1,794	2,212
Commercial Fisheries Entry Commission	1,158	1,137	1,370	1,594	2,236
Fish and Game Vessels[3]	1,145	1,283	1,465	1,616	1,785
Board of Fisheries*[4]	74	148	150	227	247
ADF&G Administration and Support (prorated)*	1,134	1,154	1,341	1,491	1,278
DEPARTMENT TOTAL	12,248	14,928	15,716	19,828	24,761
Division of Fish and Wildlife Protection (Dept. of Public Safety)*[5]	2,577	3,041	3,432	4,110	4,978
Seafood Inspection Program (Dept. of Environmental Conservation)	75	105	142	289	780
TOTAL EXPENDITURES	$14,900	$18,074	$19,290	$24,227	$30,519

FY 1981 Funding Sources:
State General Funds - $20,589
Federal Funds - $ 1,953
Program Receipts - $ 663
Other Funds $ 1,022

* Expenditures for these programs are estimated because of overlap between commercial fisheries work and other functions.

TABLE 4

FISHERIES DEVELOPMENT AND MARKETING EXPENDITURES
FY 1978 - 1982
(Thousands of Dollars)

Program	1978	1979	1980	1981	1982
Division of Fisheries Rehabilitation, Enhancement, and Development (ADF&G)*[6]	4,306	6,951	6,301	7,278	9,695
Fish and Game Facilities Debt Service[7]	1,848	2,791	3,974	6,313	9,695
King Crab Marketing and Quality Control Board	325	246	350	396	449
Office of Fisheries Development (Dept. of Commerce and Economic Development)*[8]	107	200	190	250	738
Alaska Seafood Marketing Institute	--	--	--	1,200	2,000
State of Alaska European and Asian Offices (DCED)*[9]	55	103	397	467	239
Fisheries Commissions (Governor's Office)	201	180	232	241	--
Sea Grant and Marine Advisory Programs (University of Alaska)[10]	519	620	839	904	1,298
TOTAL EXPENDITURES	$7,361	$11,091	$12,283	$17,049	$24,114

*Estimated expenditures.

TABLE 5

APPROPRIATIONS FOR FISHERIES FINANCING PROGRAMS
FY 1978 - 1982
(Thousands of Dollars)

Program	1978	1979	1980	1981	1982
Division of Business Loans[11]					
Commercial Fishing Loans	$13,044	$29,734	$32,548	$24,608	$4,680
Fisheries Enhancement Loans	2,865	946	2,210	6,152	8,321
Fishermen's Mortgage and Note Program (Div. of Bus. Loans)	--	--	--	6,165	1,872
Commercial Fishing and Agriculture Bank*[12]	--	--	16,116	14,100	--
Alaska Renewable Resources Corporation*[13]	--	--	5,389	6,747	1,272
Fishery Processor Assistance Loans (ARRC - 1980), Fish Processing Loan Guarantee Account(Dept. of Revenue - 1982)[14]	--	--	--	15,000	40,000
Fishermen's Fund (Dept. of Labor)[15]	--	--	--	--	200
TOTAL EXPENDITURES	$15,909	$30,680	$56,263	$72,772	$56,345

* Estimated Expenditures

TABLE 6

CAPITAL APPROPRIATIONS RELATED TO COMMERCIAL FISHERIES DEVELOPMENT[16]
FY 1978 - 1982
(Thousands of Dollars)

Fiscal Year	Appropriations: Fisheries Specific	Appropriations: Other	Major Projects
1978	$ 2,652	$ 4,865	Specific: Fish & Game Facilities, University of Alaska Facilities, Public Safety Vessel Repair. Other: Statewide Harbor Development & Repair, Western Region Harbors
1979	$38,268	$61,470	Specific: $20.2 million G.O. Bonds for Aquaculture Facilities, Fish & Game and Public Safety Vessels. Other: $28.8 million G.O. Bonds for Ports & Harbors, Statewide Harbors.
1980	$ 484	$ 8,549	Specific: Fish & Game Facilities, Fishery Industrial Technology Center. Other: Statewide Harbors, Dillingham Airport Paving.
1981	$18,073	$55,106	Specific: $6.2 million G.O. Bonds for Hatcheries and Patrol Vessel; Aquaculture Facilities, Bottomfish Development, Grants. Other: $48.4 million G.O. Bonds for Ports and Harbors; Southeast and Central Region Ports and Harbors, Unalaska Runway Extension.
1982	$ 8,817	$22,823	Specific: University of Alaska Marine Technology Facility & Fisheries Center, Aquaculture Facilities. Other: Southeast and Western Region Harbor Development & Repair; Homer Port & Harbor; Unalaska, Naknek, and King Salmon Airport Improvements.
TOTALS	$68,294	$152,813	

NOTES TO TABLES 2 - 6

[1] In Tables 2 - 4, the FY 81 figures are appropriations adjusted for changes in program funding; FY 82 figures are Free Conference Committee Appropriations, adjusted for Governor's vetoes; all other figures are actual expenditures as reported in the Executive Budget document.

[2] About 35 percent of the Habitat Section's FY 82 appropriation is for commercial fisheries purposes, based on approximate estimates for each budget category by Dick Logan, Chief of the section.

[3] Carl Lehman, Chief of the Vessels Section, estimates that 95 percent of the section's operations are commercial fisheries-related. This figure is therefore 95 percent of the section's total expenditures.

[4] Figures for the Board of Fisheries are 50 percent of the total expenditures for the Boards of Fish and Game, based on an estimate by the Executive Director.

[5] The commercial fisheries breakdown for the Division of Fish and Wildlife Protection is based on estimates by Lt. Rod Mills of the Division for FY 1982, and equal 42 percent of the total Division budget. Figures for earlier years assume that the same percentage holds true for these years.

[6] Approximate FRED Division expenditures for commercial fisheries were estimated at 75 percent of total expenditures by Robert Roys, Director of the Division.

[7] Fish and Game Facilities Debt Service includes payment of principal and interest on general obligation bonds sold for the construction or purchase of hatcheries, patrol vessels, and other capital expenditures. Because most of the debt service costs relate to fisheries development facilities, all debt service costs have been included in this table.

[8] The Office of Fisheries Development was created in FY 81; in earlier years fisheries development specialists were employed by the Division of Economic Enterprise. Fisheries expenditures for FY 1978-81 are based on estimates by Division personnel, as cited in Basic Issues in the Management of Alaska's Fisheries Programs, prepared by David Hoffman for the Lieutenant Governor's Office (May, 1981). The FY 82 appropriation figure includes several grants to non-profit organizations administered by the Office of Fisheries Development.

[9] Figures for the State Foreign Offices are 70 percent of total expenditures for the European Office and 50 percent for the Asian Office, based on personal communication with Shari Gross, former Director of the European Office, and House Research Agency estimates.

NOTES TO TABLES (Cont.)

[10] The Alaska Sea Grant Program is about two-thirds federally funded; therefore, these figures reflect only State expenditures, rather than the total budget (the Marine Advisory Program is entirely State funded).

[11] No direct appropriation was made for these loan programs before FY 1981. In previous years, loans were funded through purchases of loans by the Department of Revenue from General Fund moneys. The figures shown here for FY 1978 - 1980 represent the value of loans made in each year. All loans figures in this table include operating expenditures where applicable.

[12] These amounts are 94 percent of the total amounts appropriated by the legislature to CFAB. The remaining 6 percent was excluded because this was the approximate percentage of non-fisheries (agriculture) loans made as of July 1, 1981.

[13] The ARRC figures for FY 1980 are the amounts designated for fisheries programs by the legislature. The FY 1981 amounts are estimates by Dean Olson, an ARRC Trustee, as cited in the Hoffman paper. The 1981 figure is for operating expenditures only, as no new loan funds were appropriated by the legislature.

[14] An additional $60 million in processor loan guarantees was appropriated by the legislature in FY 81, but this amount is not included because it will only be expended in the event of major defaults on loans, which is not likely.

[15] The Fishermen's Fund, which pays for the treatment of injuries resulting from commercial fishing activities, is primarily supported by revenues collected from fish and game licenses. However, a shortfall in the fund in FY 1981 necessitated the $200,000 appropriation in FY 82 to meet the Fund's expected obligations. The need for future appropriations, if any, will depend on the number and size of injury claims submitted to the fund each year.

[16] Capital appropriation and G.O. Bond figures for aquaculture facilities are 75 percent of the total amount, based on an estimate by Robert Roys of the FRED Division. Portions of this table are derived from appropriations tabulated in the paper by David Hoffman.

STATE TAX REVENUES FROM THE FISHING INDUSTRY

Revenue Sources

The State of Alaska collects revenues from a number of different taxes and permit and license fees levied on the fishing industry. FY 1981 fisheries receipts totalled about $28.2 million. In terms of total State receipts, the commercial fishing revenues from these sources appear almost insignificant -- about eight-tenths of one percent of total revenues in FY 1981. The contribution of fishing revenues to the State treasury, like most income sources, is overshadowed by petroleum revenues, which comprised nearly 90 percent of total FY 1981 collections. However, fisheries tax revenues do offset some of the cost of commercial fisheries budget outlays, and represent a significant portion of the non-petroleum revenue category.

The major sources of fisheries revenue for the State, in order of the amount collected in FY 1981, are the following:

- taxes on cold storages and other processors - $11.0 million
- raw fish tax - $5.9 million
- permit, vessel and fishermen license fees - $3.9 million
- taxes on floating processors - $3.8 million
- marine fuel tax - $3.6 million (only part of which is from commercial fishing operations)

These revenues total about $28.2 million.[3] Less than half of the marine fuel tax is probably attributable to commercial fishing, with the remainder generated by marine transportation and sport boating/fishing. However, additional revenues from other sources appear to be more than the $2 million or so of the marine fuel tax which is not from commercial fishing activities. These additional revenue sources include the corporation income tax, the Alaska business license tax, and the aviation fuel tax.

Fishermen no longer pay income taxes since the repeal of the individual income tax in 1980 (except for the relatively few fishing operations that are incorporated), but fish processors pay both corporate income taxes and the business license tax. In addition, some portion of the

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[3]Source: Statement of Licenses and Taxes Collected, Alaska Department of Revenue.

taxes paid by companies in transportation, services, and all the other secondary industries affected by commercial fishing is attributable indirectly to the fishing industry. Revenues from the corporation income tax and the business license tax for all companies in Alaska totalled about $40.2 million in FY 1981.

The aviation fuel tax (FY 1981 collections: $4.1 million) is also an indirect source of fishing industry tax revenues, through the transportation by air of fish, supplies, and industry workers, and the use of aircraft for fish spotting and patrols. The amount of commercial fishing revenues represented by these additional sources could not be quantified during this research effort, but it appears that they would total less than $5 million.

Fisheries Tax Structure

The primary elements of the State's current fisheries business tax (AS 43.75) were established in 1979. On June 1, 1979, the new tax schedule established by Chapter 79, SLA 1979, took effect. Under the new tax structure, the following rates are levied:

CURRENT TAX SCHEDULE

Shore Based Processors	Floating Processors
4.5% for canned salmon; 3% for all other fish except canned salmon or development fish; 1% for development fish.	5% for all fish except development or bottom fish; 3% for development fish.

Prior to June 1, 1979, fish processors were taxed as follows:

PRE-1979 FISH TAX SCHEDULE

Shore Based Processors	Floating Processors	Canneries (Shore Based and Floating)
1% of wholesale value for all fish processing except canning.	1% Herring (did not include roe).	3% salmon; 2% crabs and clams; 1% herring & butter clams.

The legislature noted in the statement of findings of the 1979 fish tax legislation that the State had funded and implemented several fisheries-related development programs, fishery loan programs, the limited entry program, and expanded the fishery protection and management program. The stated purpose of the legislation was threefold:

(1) to insure that the State is able to continue its efforts toward overall fisheries-related development programs by raising additional revenue to pay for the programs;

(2) to make the imposition of the fisheries tax more uniform among fisheries businesses; and

(3) to provide funding for the development of new fisheries.

The 1979 fisheries tax legislation increased tax rates considerably. The tax on frozen salmon and shellfish was tripled from one percent to three percent and the canned salmon tax was increased by 50 percent from 3 percent to 4.5 percent. Rather than raising taxes equally for all types of fish, the legislation levied a greater increase on frozen production in recognition of the increasing percentage and higher value of fish processed in this manner in recent years. Taxes on floating processors were also increased up to five-fold to account for the increased use of such processors and their generally lower production costs. The tax rates on development fish (to be administratively defined) were limited to one percent for shore-based plants and 3 percent for floating processors, so that developing fisheries would not be excessively burdened in the initial years of marginal profitability.

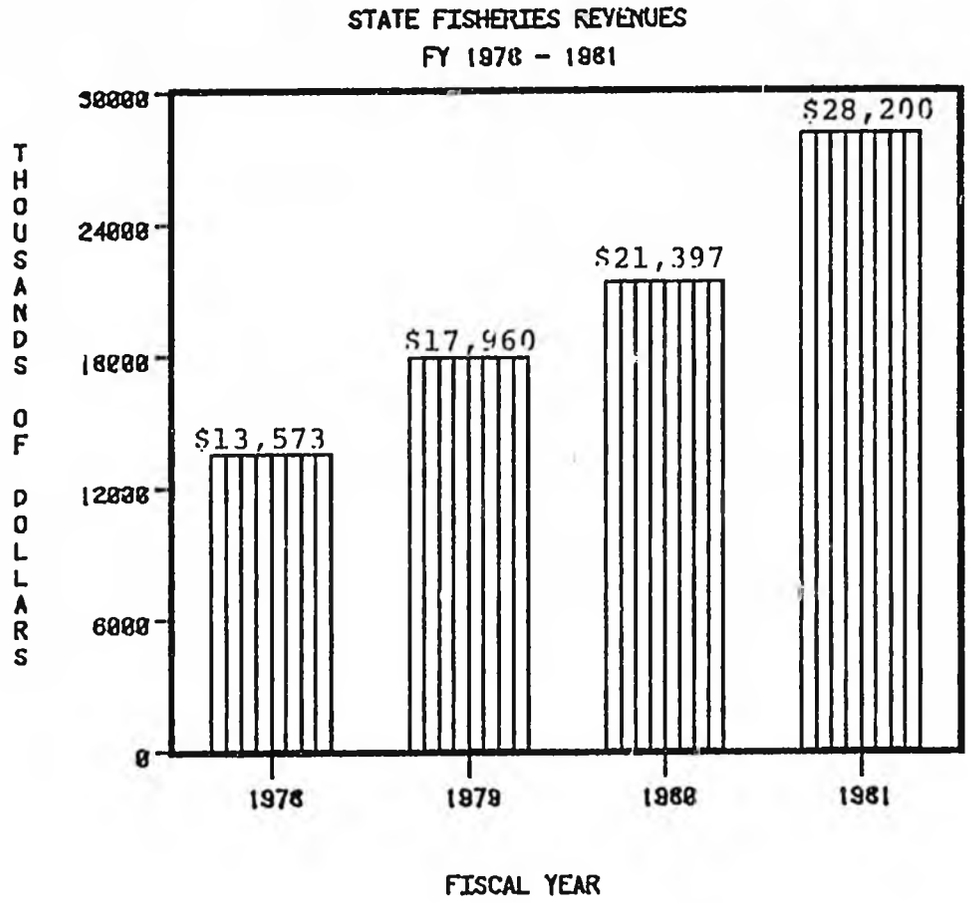
Although fisheries taxes were raised substantially by the 1979 law, the legislature did not intend for the tax increases to fully cover the cost of all fisheries programs, for several reasons. First, the tax rates were raised by up to five-fold as it was, and any greater increases were thought by many legislators (as well as the industry) to be an excessive tax burden. A second factor was the recognition that a number of fisheries expenditures, such as the FRED hatchery budget and the bottomfish program, were investments to increase future fisheries production. As such, these expenditures would be at least partly compensated by future increases in revenues resulting from an expanded fishing industry.

Another consideration was that many State programs, ranging from agricultural development to housing loans to energy programs, involve some level of subsidization from the State treasury. Expenditures for fisheries programs were therefore viewed as part of the general policy of the State to use some of its surplus revenues to expand employment opportunities and economic development in Alaska.

Recent Fisheries Revenue Trends

The effect of the 1979 fisheries tax increase can be seen in a comparison of fisheries revenues over the past several years. Figure 5, below, shows total State revenues from the fishing industry from FY 1978 to FY 1982.

FIGURE 5



Fisheries tax revenues increased by about 107 percent between FY 1978 and FY 1981, from $13.6 million to $28.2 million. The two principal reasons for the increase in revenues were the 1979 increase in fisheries tax rates, coupled with the growth in the value of fisheries harvests during the four year period.

As mentioned earlier, fisheries revenues in FY 1981 constituted about 0.8 percent of total State revenues. However, when compared only to other non-petroleum income, fisheries revenues were about 7 percent of the FY 81 total. Fisheries revenues ranked third among non-petroleum income sources, behind investment earnings and the corporation income tax. Over 50 percent of non-petroleum revenues were from investment earnings, which, although they are sustainable revenues, were derived almost totally from the investment of petroleum income. Excluding these investment earnings results in fishing revenues representing about 15 percent of non-petroleum revenues.

The percentage of total State revenues contributed by revenues from the fishing industry has declined as the State's economy diversified and expanded. In 1949, fish taxes and fees totalled one-third of the territorial budget and were the largest source of revenue. By 1953, the fisheries contribution had dropped to 17 percent, by 1966 to 8 percent, and by 1971 to 6 percent. The large influx of petroleum revenues beginning in the late 1970's was the major factor in reducing this percentage to its current level of 0.8 percent.

Comparison of Fisheries Revenues and Expenditures

In FY 1981, the State spent about $132 million on commercial fisheries programs, while direct revenues from the fishing industry totalled approximately $28.2 million. On the surface, these figures appear to suggest that the fishing industry does not pay for itself, and that the benefit/cost ratio and return on the State's investment from fishing expenditures is rather low. However, an accurate evaluation of State expenditures and revenues in commercial fishing requires more than just totalling the two sides of the balance sheet. One important point is that over $72 million of the $132 million appropriated in FY 1981 was for fisheries loan programs, and will therefore be returned to the State through loan repayments. The foregone interest earnings associated with the low-interest loans do represent a cost to the State, as explained earlier. It is also important to consider the functions of the different fisheries programs relative to the expenditures for each, as well as the additional benefits of the fishing industry in terms of employment and income to Alaska residents. While it is beyond the scope of this paper to evaluate the effectiveness

or overall value of the State's commercial fisheries programs, some observations can be made which provide a broader perspective on the State's fisheries expenditures.[4]

A number of fisheries managers and others associated with the industry stated that it is misleading to compare State fisheries revenues with all fisheries-related expenditures. According to this point of view, fisheries revenues are collected to pay for management and enforcement expenditures, and more than cover these costs. Expenditures for long-term fisheries development, such as the FRED hatchery program and market development, are investments and will be reflected in increases in future State revenues as a result of larger harvests, and so on. Other programs such as loans and fisheries education are viewed as serving other purposes besides fisheries development. For example, State loans for vessel or gear purchases in the salmon or shellfish fisheries do not increase the economic value of these fisheries, because the full allowable harvest can be easily taken with the existing vessels and gear. Therefore, such programs are considered as providing low-cost financing to Alaska residents, rather than fisheries development expenditures.

A second point to consider is that a larger percentage of fisheries expenditures is offset by State revenues from the industry than in several other areas of State development activity, including agriculture, hardrock mineral development, housing, and others. Although the generation of tax revenues is certainly a valuable benefit of development expenditures, it is usually secondary to the main objective of economic development.

A third perspective on Alaska fisheries expenditures and revenues can be had by comparing Alaska's situation with that of other states. In FY 1981, the State of Washington spent approximately $17.5 million on commercial fisheries management, while fisheries revenues totalled $4.4 million in that year. The value to fishermen of the 1980 harvest (the most recent year available) for all fish species was an estimated $59.3 million. Fisheries tax rates in Washington are, on average, somewhat higher than Alaska's, particularly for salmon, and are the highest of the three West Coast states.

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[4] For evaluations of individual fisheries programs, see reports prepared by the Division of Legislative Audit and the Division of Internal Audit in the Office of the Governor. Agencies reviewed include the Department of Fish and Game, the FRED Division, ARRC, CFAB, the Fisheries Enhancement Loan Fund, the Alaska Fisheries Council, and the Division of Fish and Wildlife Protection.

In Oregon, commercial fisheries management expenditures in FY 1981 were roughly $10.3 million; fisheries revenues were $2.1 million. The 1980 harvest value for all species was $54.9 million. Oregon's fish tax rates are relatively low, averaging about one percent of value to fishermen. The comparable management expenditures in Alaska in FY 1981 were about $34 million.[5] Fisheries revenues and harvest value, as mentioned earlier, were $28.2 million and $1.125 billion, respectively. The expenditure/revenue ratios in Washington and Oregon are clearly much higher than in Alaska. Alaska spent about 2.4 cents per dollar of wholesale fisheries value, compared to 43 cents for Washington and 19 cents for Oregon. It is important to note that Washington and Oregon do not have the extensive loan and capital project programs that Alaska does, but on a management basis, Alaska's expenditures are relatively small in relation to revenues and the harvest value of the fisheries.

The employment and income generated by the fishing industry are also important factors to consider in the evaluation of fisheries expenditures, as discussed in the last section of this report. An additional consideration not mentioned there is that the fishing industry is labor intensive relative to the value of sales. Research performed earlier by this agency indicated that in Alaska, seafood harvesting and processing provides an annual average of 14.2 jobs per million dollars of wholesale value.[6]

Although some industries have higher employment/value of sales ratios -- tourism is 20.1, building construction is 15.5 -- most others are lower, including mining at 10.4, paper mills at 7.8, and oil and gas extraction at 1.6 jobs per million dollars of sales. It is essential when evaluating State expenditures to consider not only these employment ratios, but also how much a given State investment is likely to increase the sales of the affected industry. However, these figures demonstrate that State expenditures which maintain or expand the value of fisheries production in Alaska do provide a relatively high number of jobs compared to other industries. Research into the actual sales and employment effects of specific fisheries (and other industry) development programs would be very valuable in evaluating the effectiveness of the programs and other development options.

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[5] For the purposes of this comparison, FRED Division and Debt Service expenditures have been considered as management expenses rather than fisheries development programs. The Washington and Oregon budget figures cited also include aquaculture expenditures, and are based on personal communications with budget officers in the two states.

[6] Source: House Research Agency Memoranda 80-106, Effect of State Expenditures on Unemployment and In-migration, 1980.

FISHING EMPLOYMENT AND INCOME

Although the development of Prudhoe Bay and the associated rapid growth in State revenues has reduced the significance of the fishing industry as a source of State revenues, the industry remains important in terms of employment opportunities and income. In 1979, more people were employed in the fishing industry than in any other sector of the Alaska economy[7]. An additional consideration is that the impact of the industry on many regional and local economies is greater than on the state as a whole. In many communities, fish harvesting and processing provide the primary opportunities for non-government employment. The overall economic contribution of the industry is limited in that it is by far the most seasonal sector of the economy, but available statistics suggest that for many people, fisheries work provided their only employment throughout the year.

A Note on Methodology

Commercial fishing is commonly considered as one of Alaska's major industries, but determining the actual employment and income generated by fishing has always been a difficult proposition, particularly for the harvesting segment of the industry. Good statistics are available on most industries in the state because they involve salaried or hourly wage employees covered by unemployment insurance (U.I.). In order to fulfill U.I. reporting requirements, employers must submit detailed information on the number of employees and wages paid. These reports form the basis for the employment and income figures published by the State Department of Labor.

Independent business operators such as fishermen, however, are not generally covered by U.I. and therefore don't show up in regularly published employment figures. Indirect indicators such as licenses, fish landing records, and estimates of crew size must be used in estimating employment. While relatively accurate records are available on the value of fishermen's gross earnings, much of these earnings go to pay fishing expenses. Net earnings are therefore much lower, and are difficult to determine because of the wide variability in expenses and profitability.

In this report, published information on the fishing industry has been combined with unpublished data and agency estimates to produce the employment and income estimates included in this section. Although

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[7] In terms of the total number of individuals who worked at some time during the year. Average employment was much lower because of the pronounced seasonality of the industry, as discussed later in this section.

additional research needs to be done in this area, the resulting figures appear reasonably accurate. It should be noted that much of the employment and income information for the fish harvesting sector has been derived from Department of Labor estimates. This employment series is no longer funded and no estimates of harvesting employment beyond 1979 will be produced unless additional funding is made available.

Types of Employment

In this section, employment and income benefits of Alaska's seafood industry are placed in three broad categories. Direct impact refers to employment and earnings in fish harvesting activities. Secondary impact refers to employment and income resulting from the processing of seafood products. Induced effects include employment and income in occupations such as repairing or maintaining vessels, selling goods to fishermen, and financing fishing operations. Also included as induced effects are the additional jobs and income resulting from goods and services purchased by those employed in harvesting or processing activities.[8] Each of these categories is discussed below. In each discussion, there is an attempt to distinguish between resident and non-resident employment and income.

Direct Impact--Fish Harvesting

Employment. Over 29,000 people were employed in fish harvesting in Alaska in 1979, based on peak employment. The actual number of people fishing was somewhat higher, because the peaks in different fisheries do not coincide -- salmon and crab, for example. In 1979, 15,683 vessel licenses were issued, and 25,210 crew licenses were purchased. Maximum fishing employment would therefore be 40,893; however, some licenses were probably unused, and actual employment would be slightly less than this figure.

Table 7 on the next page shows monthly low and peak employment as well as average monthly employment by region in fish harvesting during 1979. Salmon fishing accounted for roughly 75 percent of the fishing jobs in the state. Harvesting other finfish accounted for 17 percent of jobs and shellfish for the remaining 7 percent.

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[8] These categories differ from commonly used employment definitions, which usually consider fish harvesting and processing as direct or primary employment, support services as secondary employment, and the respending of fisheries income as induced employment effects. This change was necessary because the economic model used to analyze these employment relationships could not separate each of the different types of employment.

TABLE 7

ESTIMATED EMPLOYMENT & INCOME FROM SEAFOOD HARVESTING IN ALASKA

	SALMON				OTHER FINFISH				SHELLFISH				TOTAL				
	Mo. Employment			Value of Catch ($000's)	Mo. Employment			Value of Catch	Mo. Employment			Value of Catch	Mo. Employment			Value of Catch	%
	Low	Peak	Avg.		Low	Peak	Avg.		Low	Peak	Avg.		Low	Peak	Avg.		
Southeast	31	5,716	1,749	60,382	15	2,577	611	16,813	55	116	80	4,995	126	8,162	2,440	82,190	13
Prince William Sound	0	1,361	385	35,092	0	544	106	7,518	30	187	97	4,537	39	1,597	588	47,147	8
Cook Inlet	0	3,350	684	20,935	0	1,812	373	767	32	321	145	6,737	32	5,042	1,202	28,439	5
Kodiak	0	3,040	509	23,048	2	597	131	3,105	32	786	398	42,534	86	2,886	1,038	68,687	11
Bristol Bay	0	6,351	1,173	139,602	0	2,074	183	9,100	0	0	0	0	0	6,353	1,356	148,702	24
Aleutians	0	1,517	343	52,897	0	133	11	507	20	214	91	34,480	146	1,872	859	87,884	14
Rest of State	0	3,103	759	12,615	0	371	39	1,171	87	902	384	145,449	0	3,102	798	159,235	26
Total	31	23,637	5,605	344,571	29	5,464	1,480	70,206	256	2,321	1,196	238,732	1,155	29,015	8,281	653,509	

* Figures for low and peak employment may not add to totals either horizontally or vertically because the time at which peaks and troughs occur are different in various fisheries.

** Value of halibut is included in total value of catch but was not distributed among regions. Employment in halibut fishing has been included in the regional distribution.

Source: Department of Labor, Department of Fish and Game 1979 Catch and Production Statistics, House Research Agency.

More salmon fishermen worked at one time in Bristol Bay than in any other area, but the season in Southeast was longer so that average year-round employment was higher in Southeast. The Southeast region employed more people in other finfish harvesting as well, and again the longer season can be inferred from the relationship of peak to average employment.[9]

Fish harvesting is by far the most seasonal sector of Alaska's economy. An index of seasonality can be developed by dividing both low and peak monthly employment by the number of full-time equivalent positions as determined by the DOL formula for computing average monthly employment. Figure 6 on the following page displays this index for salmon, other finfish, and shellfish harvesting. Other sectors of Alaska's economy are included in the figure for the purpose of comparison.

Figure 6 shows that salmon fishing is the most seasonal fishery, with low monthly employment of only one percent of the annual average, and peak employment of 422 percent of the average. Shellfish harvesting is the least seasonal of the fisheries, with low and high employment of 47 percent and 194 percent of the annual average, respectively. Due to the high degree of seasonality, estimates of peak employment as well as average monthly employment are useful in determining the importance of fish harvesting to the Alaskan economy.

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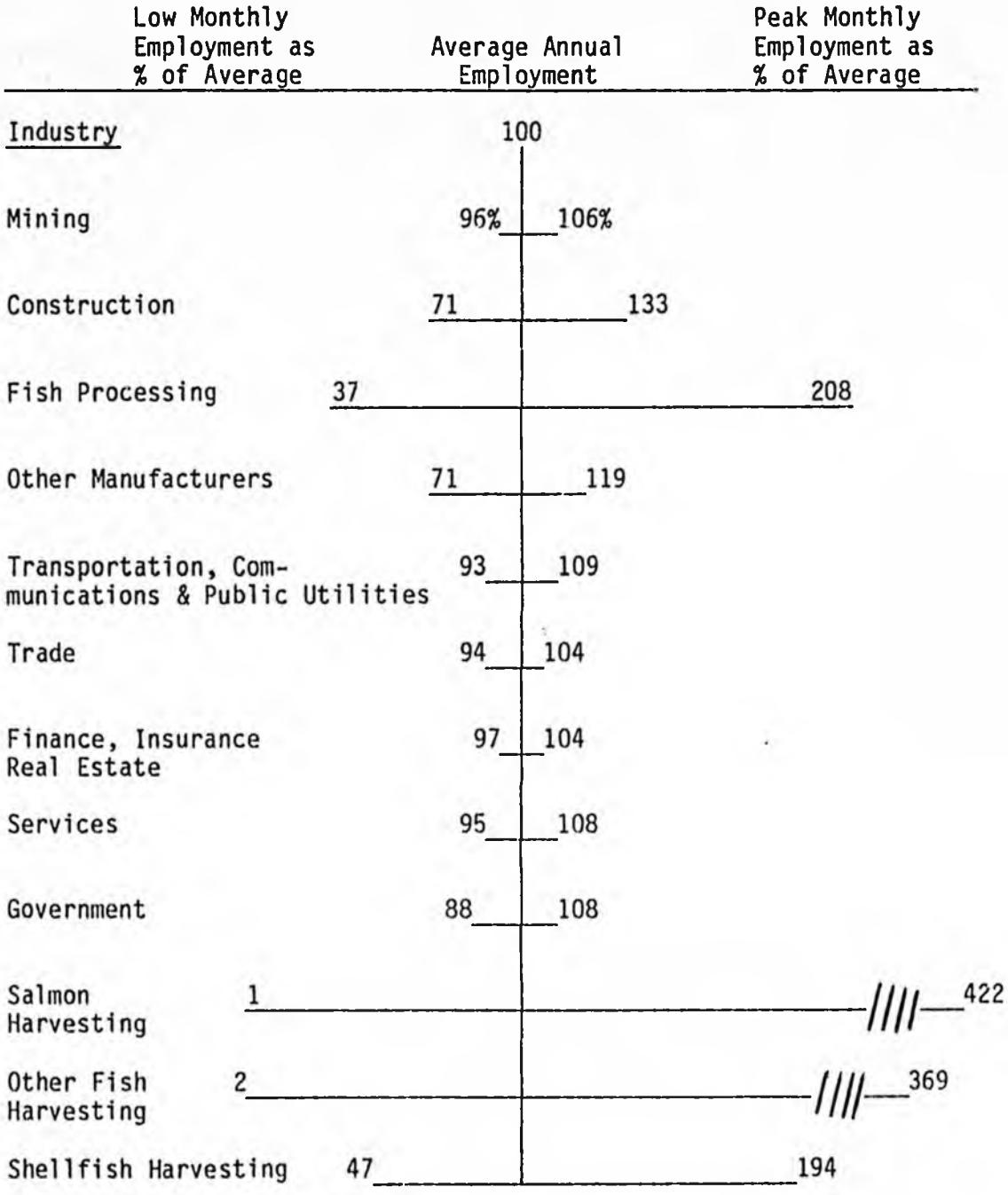
[9] These harvesting employment estimates are based on methodology first developed by George Rogers and Richard Listowski. In work for the Institute for Social and Economic Research (ISER), they calculated employment by counting the number of vessels landing fish in each fishery each month and multiplying by a crew factor appropriate to the type of gear used. The crew factors were based on consultation with fishery biologists, fishermen, and fish processors in each fishery. [Measuring the Socioeconomic Impacts of Alaska's Fisheries, George Rogers, et al., Institute of Social and Economic Research, April 1980.]

Barbara Baker, an economist for the Department of Labor, revised data on crew factors and used the ISER methodology to produce estimates of employment in Alaska's fish harvesting sector through 1979. Her (unpublished) estimates are used in this analysis. The estimates include only the captain and crew of fishing vessels. Tender and packer crew and onshore workers are categorized as processing, rather than harvesting employment.

FIGURE 6

AN INDEX OF SEASONALITY FOR VARIOUS SECTORS OF THE ALASKAN ECONOMY
1979



Source: Statistical Quarterly 79:4, Alaska Department of Labor, revised 12/15/81; House Research Agency.

Figures 7 and 8 on the following page show the distribution of employment in Alaska's economy during 1979. The distribution of peak monthly employment in Figure 7 shows that the fish harvesting sector ranked as Alaska's third largest private sector employer behind the service and trade sectors. Combined employment in fish harvesting and fish processing was 44,157, which made the seafood industry Alaska's largest private employer in terms of peak monthly employment. The distribution of average monthly employment in Figure 8 shows that the impact of the seafood industry is less pronounced in terms of full-time equivalent postions. Combined employment in fish harvesting and fish processing was 15,553, which made the seafood industry Alaska's third largest private employer in terms of full-time equivalent positions.

Income. Table 7 also gives approximations of income from fish harvesting. As with employment, 1979 data are the latest available and are used throughout this analysis. The values in Table 7 represent gross income to the fishermen; no account is taken of fishing costs, which may vary considerably between species, gear type, and area. The information in Table 7 does not allow conclusions to be made about the amount of income expended in a particular geographic area. Significant expenses -- such as crew share, boat payments, and operating expenses -- may be paid outside the area to which the income is allocated in Table 7.

Table 7 shows that gross income to fishermen was $653.5 million in 1979. Salmon accounted for $344.6 million (53 percent), shellfish for $238.7 million (37 percent), and other finfish for $70.2 million, or 11 percent of total gross fishing income. The fisheries of highest value were the Bristol Bay salmon run ($139.6 million) and the shellfish harvest in the Bering Sea ($145.5 million). Comparison of gross fishing income to income in other sectors is misleading because fishing costs--food, fuel, maintenance, equipment, etc.--vary widely and should be deducted to obtain a measure of fishing income comparable to income in other sectors.

Data limitations make accurate assessment of net fishing income for all fisheries impossible, but a rough calculation indicates that income from fish harvesting was approximately nine percent of total income in Alaska in 1979. The calculation is based on two fisheries income surveys, one a salmon and herring study performed by the University of Alaska Sea Grant Program[10], and the second a shellfish survey by the Commercial Fisheries Entry Commission.[11]

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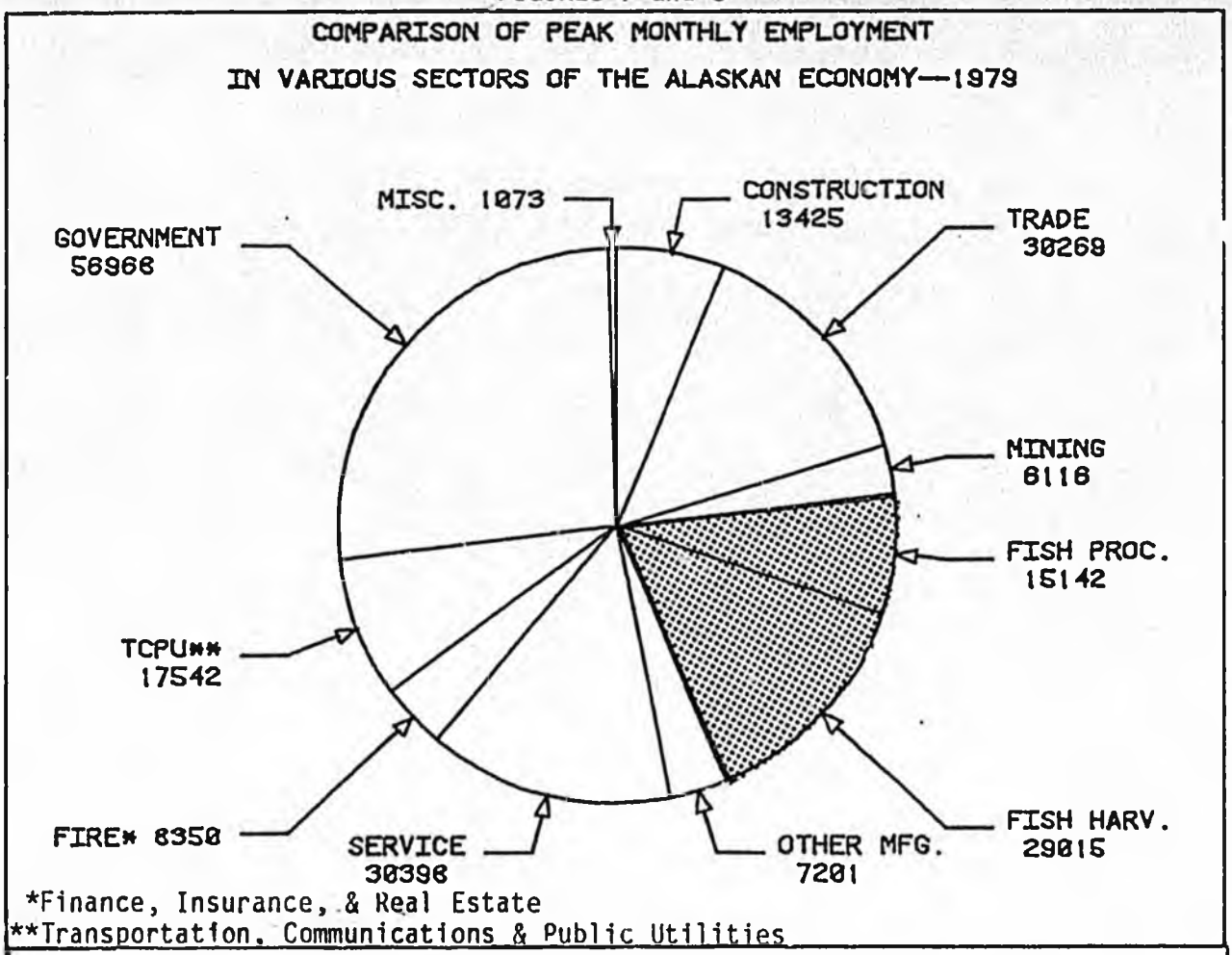
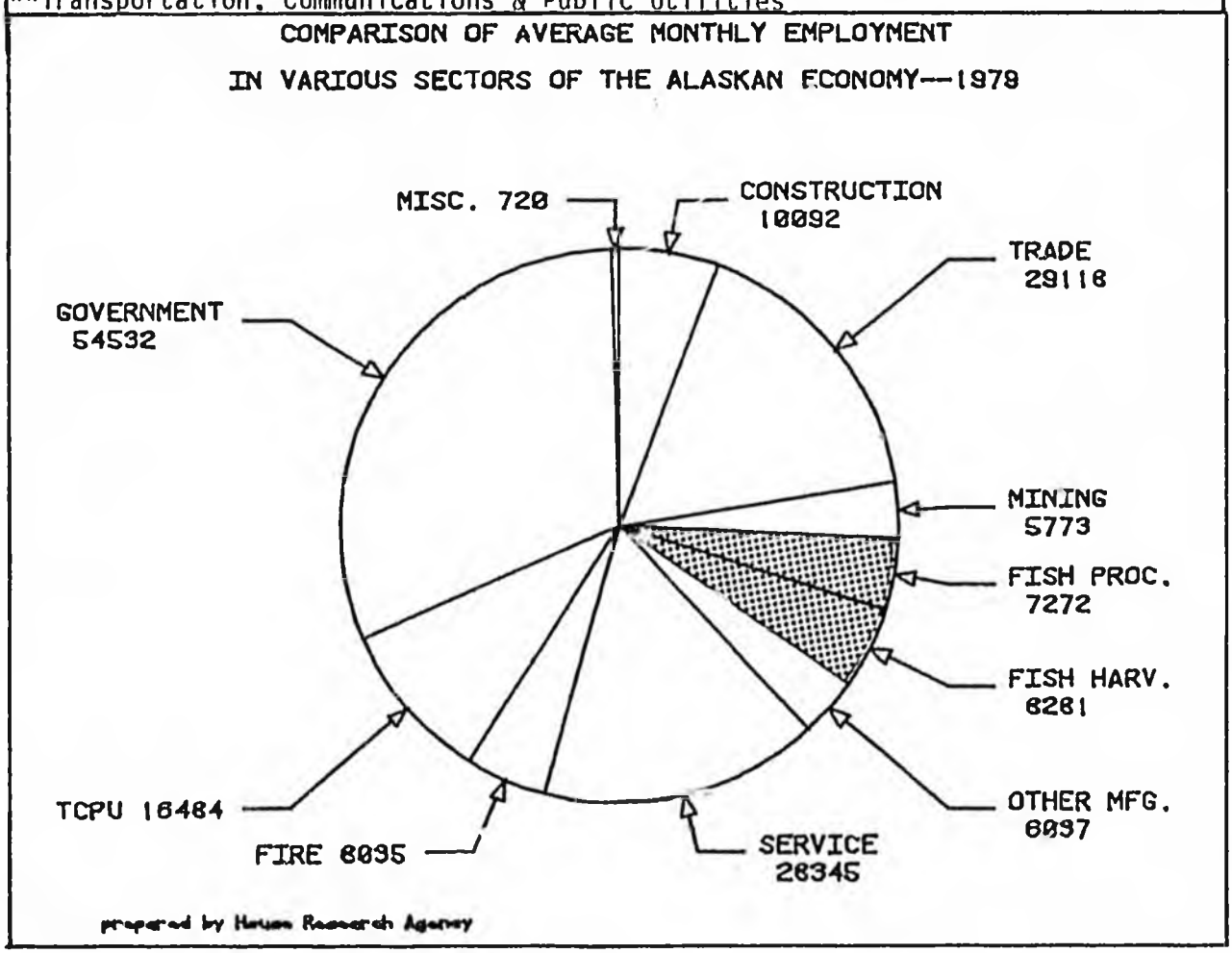
[11] 1979 Fisherman's Income Survey, Herring and Salmon Fisheries, Alaska Sea Grant Program Report 80-5, Compiled By Doug Larson.

[12] Alaska Shellfish Bio-Economic Data Base, Commercial Fisheries Entry Commission, by Lewis Queirolo, et al., February, 1979.

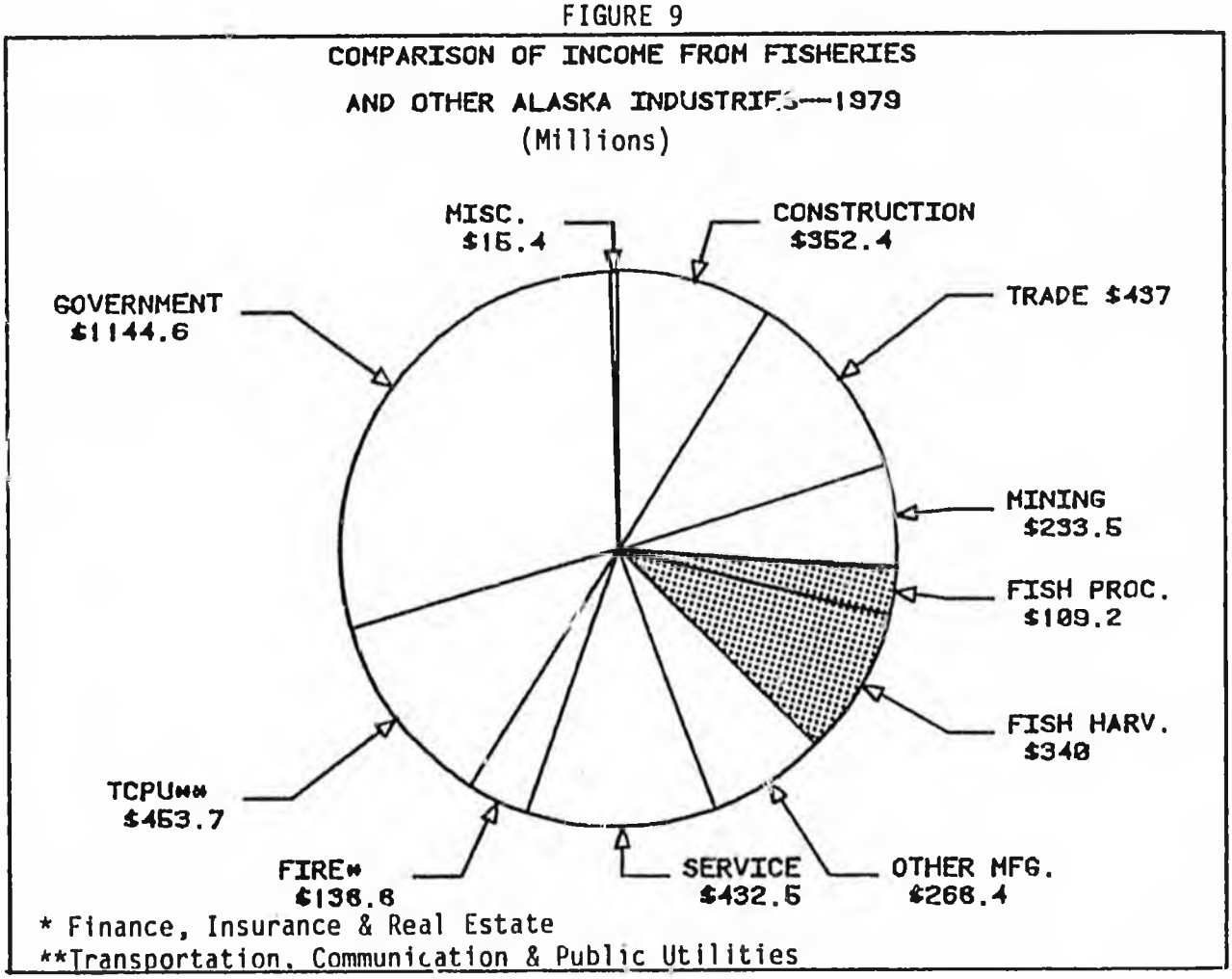
FIGURES 7 and 8





The Sea Grant study indicated that net income in salmon fisheries in 1979 was approximately 37 percent of gross income. The shellfish survey was based on 1976 data, and coincidentally found that net income for crab and shrimp vessels also averaged 37 percent of gross earnings. The net/gross earnings ratio can be expected to vary widely from year to year with changes in harvest values and gross earnings, but 1979 shellfish gross earnings were similar to 1976 earnings when inflation is considered. Crew shares vary widely among fisheries and vessels within fisheries, but for the purposes of this comparison, an average crew share (total crew) of 10 to 20 percent of gross income is assumed. Based on these assumptions, total net income for skipper and crew would be roughly 47 to 57 percent of gross earnings, or $310 million to $370 million. This range of net harvesting income is equivalent to 8.1 to 9.8 percent of total Alaska income in 1979 as reported by the Department of Labor. Figure 9, below, shows the relationship of this amount to income in other sectors of the Alaskan economy. The figure shows that fish harvesting produces more income than the mining, finance, and manufacturing (split between processing and other manufacturing) sectors, and is fifth among all private industries. When fish processing income is combined with harvesting income, the fisheries sector ranks second, after transportation, communications and public utilities.

FIGURE 9



Resident and Non-resident Employment and Income.[13]

A reasonable approximation of the number of fishing jobs held by Alaskans and the amount of fishing income that remains in Alaska can be made by combining information from the Sea Grant survey with information on licenses and permits from the CFEC.

The Alaska Department of Revenue reports that 16,525 (66 percent) of all commercial crew licenses sold in Alaska in 1979 were resident licenses. The 15,683 vessel licenses issued in 1979 by the Commercial Fisheries Entry Commission are not differentiated by residency, but fishery permits offer an approximation of the proportion of vessels operated by Alaskan residents. Data provided by CFEC show that about 81 percent of the total of 17,609 commercial fishing permits were held by Alaskans in 1979. If the ratio of permits per vessel is similar for resident and non-resident owners, these data imply that about 12,700 Alaskan vessels (.81 x 15,683 total vessel licenses) fished at some time during 1979.

Combined figures for vessel and crew indicate that as many as 29,200 Alaskans fished commercially in 1979. This figure is roughly 71 percent of all license and permit holders. If this 71 percent ratio is applied evenly throughout the year, about 20,700 of the 29,000 people employed at the peak of the harvesting season were Alaskans and roughly 5,900 of the 8,281 "full-time equivalent positions" in fish harvesting were held by Alaskans in 1979.

Table 8 on the following page shows the proportion of gross value of salmon caught by Alaskan fishermen in 1979. The Alaskan share ranges from a low of 50 percent in Bristol Bay to a high of 78 percent in Cook Inlet. The average Alaskan share of the total value of salmon fisheries was 59 percent.

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[13] Alaska residency is generally defined for the purposes of fishing licenses and permits as one year of continual dwelling in the state, with no registration to vote or permanent residence in another state.

TABLE 8

DISTRIBUTION OF SELECTED SALMON PERMITS AND GROSS EARNINGS AMONG RESIDENTS AND NON-RESIDENTS[1]

	Number of Permits[2]			Average Income per Vessel[3]			Value of Catch[4] ($000)	Estimated Value of Catch by Alaska Residents[5] ($000)	Estimated Proportion of Catch by Alaska Residents[5]
	Total	Alaska Residents	Non-Residents	Average	Alaska Residents	Non-Residents			
Southeast	1,816	1,245 (69%)	571	$42,622	$37,717	$53,538	$60,382	$36,632	61%
Prince William Sound	816	613 (75%)	203	42,573	41,575	45,565	35,092	25,670	73%
Cook Inlet	1,373	1,146 (83%)	227	25,232	27,717	19,148	20,935	16,306	78%
Kodiak	559	419 (75%)	140	59,438	56,685	67,268	23,048	16,339	71%
Bristol Bay	2,628	1,722 (66%)	906	70,263	61,823	81,452	139,602	69,893	50%
Rest of State[5]	--	--	--	--	--	--	65,307	38,652	59%
Total	7,192	5,145(72%)	2,047	--	--	--	$344,571	$203,492	59%

[1]Permit numbers in this table do not include fisheries in the Arctic-Yukon-Kuskokwim region, hand purse seines, beach seines, or these fisheries: Chignik purse seine, Peninsula/Aleutians purse seine, drift and set gill net, and Yakutat set gill net. The total number of salmon permits held statewide in 1979, including interim use permits, was 10,335, of which 8,135 (79%) were resident and 2,200 (21%) were non-resident.

Sources: [2]Commercial Fisheries Entry Commission 1979 Annual Report, [3]Sea Grant Report 80-5, [4]Department of Fish and Game Catch and Production Statistics, [5]House Research Agency

Revised 2/24/82

Similar data are not available for other species; the estimates in Table 9 are based on permit and license data obtained from the CFEC and the Alaska Department of Fish and Game. Data are insufficient to provide a regional breakdown.

TABLE 9
DISTRIBUTION OF PERMITS AND GROSS EARNINGS IN ALASKAN FISHERIES
1979

Fishery	Total	Alaska Residents	Per-cent	Non Resident	Value of Catch ($000)	Estimated Value of Catch by AK Resident ($000)
Halibut	4,282	4,001	93%	281	$31,225	$29,039
Black Cod	329	265	81%	64	935	757
Shrimp	674	629	93%	45	12,867	11,966
King Crab	1,829	1,278	70%	51	148,745	104,122
Tanner Crab	1,070	802	75%	268	71,992	53,994
Dungeness	454	395	87%	59	4,166	3,624
Clams	363	331	91%	32	92	84
Herring	1,161	1,012	87%	149	32,709	28,457
TOTAL	10,162	8,713	86%	1,449	302,731	232,043

There is reason to believe that share of permits held does not accurately reflect share of value of catch. Note (see Table 8) that Alaskan residents held 72 percent of salmon permits but earned only 59 percent of gross fisheries income. If this relationship applies to other fisheries as well, the Alaskan share of other fisheries income is approximately 70 percent of total income in the fisheries rather than the 86 percent implied by the share of permits held. Averaging salmon fishery income and income from other fisheries indicates that Alaskan fishermen's share is about 64 percent of the total gross value of seafood landed in Alaska.[14]

[14] The actual percentage of resident income may be somewhat lower, because this methodology does not account for variances in specific fisheries or vessel sizes. For example, while Alaskans held 70% of king crab permits statewide, the percentage of Alaskan crab earnings in the Bering Sea was probably substantially less than this, because more "outside", large boats fish there and take a larger share of the catch.

The conclusion that 64 percent of the harvest (in terms of gross value) was landed by Alaskan fishermen does not imply that 36 percent of the $652 million gross income left the state. Food and fuel are two major expense items that tend to decrease the amount of gross income which leaves Alaska. Some payments for maintenance work and a portion of crew shares might also be expected to remain in Alaska, but the amounts are a matter of speculation. Rough calculations based on data from the Sea Grant survey indicate that about 83 percent of gross income from seafood harvests remains in Alaska.

Secondary Impact--Seafood Processing[15]

Employment. The indices of seasonality presented in Figure 6 show that seafood processing is a highly seasonal industry. The data in Table 4 on the next page show that processing employment ranges from less than 2,700 in slack periods to over 15,000 at the peak of the season. The Cook Inlet area reports the highest peak employment (3,678 jobs), although both the Aleutian and Kodiak regions have higher average annual employment because of shellfish processing there. About one-quarter of the Cook Inlet processing employment was in Anchorage.

Almost no fish is landed in Anchorage directly by fishermen, but a large volume of salmon is flown in each summer from Bristol Bay, Bethel, and other areas for processing. In 1979, Anchorage plants processed about 18.5 million pounds of salmon, or approximately 12 percent of the statewide fresh, frozen and cured pack.[16] The 1980 processing capacity in Anchorage more than doubled from 1979 levels, substantially increasing processing employment.

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[15] The employment and income estimates discussed in this section were obtained from the Research and Analysis Section of the Department of Labor. The estimates are higher than those reported by the Alaska Seafood Marketing Institute because these figures include employment and income in fish tendering and packing and cold storage activities. The estimates may be low because they are based on employment covered by unemployment insurance. To the extent that tenders and packers are self-employed or working on contract rather than as employees of a covered employer, both employment and income will be underreported. Correction of potential understatement would require a survey of processors and/or tenders and packers. No formal survey was performed and no estimate made of the number of jobs and amount of income not reported to the Department of Labor.

[16] Capacity Analysis of the Anchorage Salmon Industry, Dames & Moore, prepared for the Municipality of Anchorage, June 1980.

According to the Department of Labor formula for computing full-time equivalent positions, statewide average annual employment in seafood processing was 7,272 in 1979. Table 10, below, shows processing employment and wages for each region in the state. Figure 8 (page 41) shows that average processing employment was 4.4 percent of total employment in Alaska in 1979.

TABLE 10

1979 EMPLOYMENT AND EARNINGS IN SEAFOOD PROCESSING

Region	Average	Low	Peak	Dollar Value
Southeast	1,128	506	2,832	$ 15,135,211
Prince William Sound	325	90	828	5,921,431
Cook Inlet	1,480	412	3,678	16,180,749
Kodiak	1,586	748	2,466	24,089,446
Bristol Bay	669	95	2,617	14,505,073
Aleutian Islands	1,746	670	2,740	29,706,612
Rest of State	338	50	918	3,696,829
Total	7,272	2,692	15,142	109,236,361

Source: Department of Labor, Division of Research and Analysis; House Research Agency, 1/15/82

Unpublished data available from the Department of Labor show that about 21,400 individuals worked in the processing industry during 1979. This is the number of individuals who worked at any time during the year and is therefore higher than the 15,142 peak generated by the Department of Labor's formula for estimating representative employment. Standard practice for adjusting these data includes deleting "casual workers" from the count. Casual workers are defined as those workers who earned less than the $1,000 minimum requirement to qualify for unemployment insurance benefits. After this adjustment, the number of seafood processing workers is 16,670.

Income. The average annual wage of these 16,670 workers was about $6,150, but more than half of all processing workers earned less than $4,000 in 1979. Despite low average earnings--average and median income in processing were lower than in any other sector of Alaska's economy--and high seasonality, 83 percent of processing workers reported no other income in Alaska outside the processing industry in 1979. Two probable explanations for this high degree of dependence on processing as a source of income are that 1) other employment opportunities are scarce in many areas where processing occurs and 2) a high proportion of processing workers report no other earnings in Alaska because they leave the state. The latter point will be discussed after reviewing the payroll data in Table 10.

Table 10 shows that total wages paid to seafood processing workers was $109.2 million in 1979. Figure 8 (page 41) shows that this is about 2.9 percent of total income from wages and salaries plus net income from fishing. The Aleutian region had the largest share of processing income--$29.7 million, or 27 percent--followed by Kodiak with $24.1 million, or 22 percent. Bristol Bay had a far lower share of processing payroll (13 percent) than of value of catch (24 percent). The Kodiak and Cook Inlet regions share of processing income was higher than the shares of catch in those regions. The Cook Inlet region showed the largest gain; approximately five percent of gross value of fish harvested was in Cook Inlet, but 15 percent of the processing payroll can be attributed to the area.

The variations within the state in share of harvest and share of processing payroll may be due to several factors. Transporting fresh fish from Bristol Bay to Anchorage, crab from the Bering Sea to ports in the Aleutians, and other incidences of processing in regions outside the area of harvest may explain a large portion of the shift. Type of catch can also have an impact on processing income. For example, crab is a high value catch but processing is relatively mechanized so requires relatively less labor than salmon.

Payroll arrangements of the processors offer a third explanation for relatively high payrolls in Kodiak and Cook Inlet. Processing plants in remote areas may pay relatively low wages but provide food and lodging to workers while Anchorage processors may pay higher wages but do not provide similar benefits to employees. In-kind payments are not reflected in the payroll data reported to the Department of Labor. The lower wages in Dutch Harbor, for example, relative to wages in Anchorage would tend to reduce the Dutch Harbor share of total statewide processing wages.

Resident and Non-resident Employment and Income. Information provided by the Department of Labor shows that about 47 percent of unemployment insurance claims filed in 1981 by former processing employees were

filed from outside Alaska.[17] Unemployment insurance data is the best available indicator of residency of workers. Employment data collected by the Department of Labor do not record the residency status of employees. Unemployment insurance files do indicate the location from which a claim was initiated. If we assume that the tendency of residents and non-residents to file unemployment insurance claims is similar and that non-residents return to their permanent homes before collecting unemployment compensation, unemployment statistics will offer a good approximation of residency of workers.

1981 claims reflect earnings during 1980. Data corresponding to earnings in 1979 have insufficient detail to identify processing workers separately. The data also show that non-resident processing employees who collected unemployment compensation earned about $250 per year more than did residents and that non-residents collected benefits an average of one week longer than residents. No regional breakdown of these data is available, nor do the data allow conclusions on the proportion or amount of processing wages that were spent in the state.

Induced Impact--Other Sectors of the Alaskan Economy[18]

Induced impact refers to the jobs and income created when income from a given source is used to purchase goods and/or services. Induced impact is often referred to as the "ripple effect" or the "multiplier" because the income ripples through other sectors of the economy and multiplies the impact of the original amount of employment or income.

National or regional employment multipliers are generally expected to fall in the range of 1.8 to 2.5, meaning that .8 to 1.5 additional jobs result from each new position created. Due to relatively high dependence on supplies of goods and services from outside its borders, multipliers for Alaska will generally be 1.7 or less. The multiplier

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[17] Source: Unemployment Insurance Actuarial Study, Alaska Department of Labor, December 1981.

[18] The induced effects discussed in this section were determined by a special run of the econometric model used by the Division of Budget and Management, Office of the Governor. Although the results appear reasonable, the reader should be aware that the figures were produced by computer simulation and not by actual measurement of employment or income. The base of comparison is the control forecast which appears in the October 1981 issue of "The Alaska Economic Information and Reporting System." The special run made only one change to the input of that model; anticipated fish harvest in 1982 was increased by ten percent over the estimate used in the base scenario.

for fish processing employment will be one of the lowest in Alaska's economy because of the relatively low income of processing employees and the relatively high proportion of non-resident workers. Low income implies that less money for re-spending in other sectors will be generated by processing jobs. High non-resident employment implies that leakage outside Alaska will be higher than in other sectors. Both factors tend to reduce the multiplier effect.

Employment Multiplier. Table 5 compares output from this special run of the model to output from the original model and indicates the induced employment impact of processing employment on other sectors of Alaska's economy. The multiplier applicable to average annual employment is 1.28, which means that 28 additional jobs in other sectors result from each 100 jobs in the processing sector. The 723 additional full-time equivalent positions in processing which are the projected result of increased harvest levels create 202 other jobs. Maximum effects occur in the third quarter, when 291 jobs (in addition to those in the processing sector) are created. Sectors most affected by increases in processing employment are service (which include fuel and maintenance facilities) with 157 jobs; transportation, with 47 jobs; and government, with 39 jobs.

This exercise cannot determine a multiplier for employment in fish harvesting because adding fishermen does not necessarily mean that more fish will be caught. Weather, harvest limits, and other factors outside the control of fishermen influence yield and income so that it is impossible to specify a fixed linkage between employment in fish harvesting and employment and income in other sectors of the economy.

The multiplier for the processing industry was determined by increasing processing employment by an arbitrary amount and then examining changes in other sectors of the economy. A ten percent increase in the quantity of fish harvested was chosen as the means of generating a second set of model output with higher processing employment. The model was not designed to specify a precise relationship between fish harvest and processing employment and may not accurately enumerate processing employment resulting from increased harvest levels. However, the purpose of the analysis was to determine the effects of processing employment on other sectors of Alaska's economy, so this point is not critical to the analysis.

TABLE 11

COMPARISON OF EMPLOYMENT EFFECTS OF CHANGES IN SEAFOOD PROCESSING EMPLOYMENT*

	Average Annual Employment			Additional Employment			
	Base	New	Difference	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Mining	8,835	8,835	0	0	0	0	0
Construction	14,299	14,309	10	2	8	14	16
Food	8,162	8,885	723	439	723	1,178	553
Transportation	18,779	18,807	28	21	18	47	25
Utilities	6,167	6,176	9	3	5	12	14
Trade	2,900	26,910	10	3	6	8	16
Finance, Insurance, Real Estate	8,623	8,624	1	0	1	1	2
Service	31,928	32,030	102	57	93	157	98
Government	56,890	56,926	36	22	31	39	53
Miscellaneous	669	669	0	0	0	0	0
Total	187,553	188,478	925	551	891	1,469	787

* The "base" case assumes no change in fisheries harvests or seafood processing employment; the "new" case assumes a 10 percent increase in total pounds of seafood landed. See text for detailed explanation.

Source: Alaska Economic Information and Reporting System Computer Model, House Research Agency

1/15/82

As discussed earlier, only those workers covered by unemployment insurance are reported to the Department of Labor. Because the model uses input from that source, it does not include self-employed individuals in the processing industry and may not accurately reflect self-employed individuals in projections of impact on other sectors of the economy. This omission may be of particular importance in the transportation sector. Individuals who transport fish by small aircraft may be underrepresented in the model projections.

Income Multiplier. A multiplier for income can also be determined by comparison of model output, and is estimated to be 1.84. This means that each $100 dollars of additional income to the processing sector results in an increase of $184 throughout the economy. Personal income was about $20 million higher in the special model run than in the original run. About $10.9 million of this amount was paid to the additional processing workers, leaving $9.1 million to be distributed among the induced employment.

No regional breakdown of the model is available, but all jobs are created within Alaska. The multipliers for Anchorage and other major cities may be slightly higher than the statewide figures and multipliers for remote areas may be slightly lower. This variation would occur if a greater proportion of workers in remote areas tend to leave the area when the processing season is completed and if the more developed economies of Anchorage and other cities absorb a larger share of expenditures before these dollars leak outside the state. Additional research would be required to document this possible variation in multiplier effects in different regions and communities of Alaska.

It is important to note that higher income multipliers, in the range of 2.7 to 4, are sometimes cited for the fishing industry. The main reason for the higher multipliers is that these studies are often based on the multiplier effects of the value of seafood landings, rather than the value of wages paid to processing workers, as in the above analysis. By using the value of seafood landings as the multiplier base, such studies are simply starting one step earlier in the production process.

Short-Term Multipliers

The above discussion has focused on long-term multiplier effects, or the number of additional jobs created year after year by an expansion in fisheries employment. The short-term multiplier effects of major fisheries developments may be substantially larger, particularly for new processing plants or other facilities established in localities lacking basic support services like docks, roads, water & sewer facilities, etc. The establishment or expansion of a major processing operation may result in significant short-term additions to employment in construction, transporation, and other sectors.

For example, if a major bottomfish processing facility were established in Unalaska or another remote community, the existing docks, water system, and other systems would likely need considerable improvement or expansion. The employment multiplier resulting from the addicional fish processing employment may therefore be substantially higher than the figure of 1.8 cited above, until this additional development is completed.

FUTURE DEVELOPMENT PROSPECTS

As noted earlier, the value and employment figures developed in this section have been based mainly on 1979 information, the most recent available. However, the harvest levels and prices of Alaskan fisheries products are highly variable from year to year, and it is therefore necessary to consider more than just one year's production when evaluating the long-term value of Alaska's fishing industry. There is a wide variance of opinion on the probable direction of fisheries harvests and values.

Both the salmon and shellfish fisheries had relatively high harvest levels in 1979 which some fisheries managers and others do not believe can be sustained over the next ten years or longer. This group believes that mild winters, favorable survival conditions, and other factors which are unlikely to persist for any length of time have been largely responsible for the current high harvest levels; therefore, average harvest levels over the next 10 years or so are expected to be lower for most fisheries. The Division of Commercial Fisheries has estimated the short-term average value of all Alaska fisheries to be approximately $394 million, nearly 40 percent less than the $640 million value of the 1979 harvest.[19]

Other individuals associated with the fishing industry feel that this projection is very conservative, and does not adequately reflect factors which will continue to have a positive influence on fisheries harvests and values. These factors include the reduced Japanese high seas interception of North American salmon stocks, aquaculture production, bottomfish development, and marketing efforts. According to this point of view, fisheries values in future years are not likely to drop below the 1980-1981 levels of about $600 million (ex-vessel value), and may be substantially higher.

Although the probable direction of future fisheries harvests and values is subject to debate, some observations can be made on the effects of increased, or reduced, harvests on fisheries employment. In the harvesting sector, the number of fishermen does vary somewhat from year to year based on expectations of harvest and earnings levels, but these

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[19]Source: Memorandum to Regional Supervisors from John Clark, Chief Fisheries Scientist, March 20, 1981. This estimate is based on 1980 average prices, by species by area, and the short-term harvest objectives of the Division of Commercial Fisheries. The short-term harvest objectives are, in turn, based on average survival conditions, current funding levels, and present management technology. The objective for salmon is 65.2 million fish, and for shellfish is 327 million pounds.

fluctuations tend to be much smaller than the variances in harvests and values. Fishermen's earnings are closely linked to harvest and price levels, however. On the processing side, more substantial changes in employment could be expected with increased or reduced harvest levels.

One concrete and recent example of this linkage is the processing plant layoffs associated with the poor 1981 fall king crab harvest. In Unalaska, workforce reductions of 30 to 60 percent in processing employment had taken place by midseason, which ended with a harvest of only 31 million pounds, less than one-quarter of the previous year's 130 million pound catch. Projections of an equally poor harvest for the February, 1982 tanner crab season have also led to planned reductions in processing employment for that fishery, with one Unalaska processor expecting to start the season with only half of its usual 500 person workforce.[20]

On the other hand, the effect of increases in harvest levels on processing employment can be seen by comparing the 1977 salmon season, in which a total of about 50.8 million fish were landed, to the 1979 season, when 89.4 million salmon, or 76 percent more, were caught. Peak seafood processing employment in July of 1979 was 14,252, about 55 percent higher than the peak 1977 level of about 9,250 employees. Although there are other factors affecting processing employment besides harvest levels, these comparisons demonstrate that there is a definite relationship between the two.

Despite the recent high harvest levels, the fishing industry is saddled with several serious problems: high interest rates, poor product markets and prices, and increasing production costs. These problems may continue to limit the growth of the industry in coming years. However, there are a number of prospects for the further development of the Alaska fisheries in the mid- to long-term which may substantially boost fisheries production, employment, and income. Among the most significant or likely of these prospective developments are the following:

1. Increased harvest levels, primarily of salmon, through the further development of aquaculture facilities and improvements in propagation techniques, disease control, and other factors.

2. Greater demand, and higher prices for Alaskan seafood products through marketing efforts of the Alaska Seafood Marketing Institute and other programs.

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[20]Source: Alaska Fisherman Newspaper, "The King Crab Boom is Over in Dutch," December 1981.

3. Higher levels of participation by Alaskans in groundfish harvesting and the utilization of presently unfished species.

4. Increases in harvests resulting from improved management capabilities, based on advances in technology and/or higher funding levels, thus allowing more accurate control of harvest and escapement levels.

5. Higher employment and value added from increased in-state processing and cold-storage capabilities.

Discussions of future trends in economic or industrial development are almost always highly speculative, especially for an industry as variable as the Alaska fisheries. The intent of this discussion is not to forecast future developments, but simply to summarize the probable effects on fisheries employment and income levels of the development possibilities listed above to whatever extent they might occur. Possible regional impacts are noted where appropriate.

Aquaculture

The successful artificial rearing of fish, primarily salmon, has been a goal of fisheries managers and others for a number of decades. Aquaculture has proven to be an expensive investment and has been saddled by a number of problems, such as brood stock diseases and uncertainties about the effects of artificial propagation on the genetic diversity and health of wild fish stocks. However, substantial progress has been made in handling these problems and hatchery fish are now beginning to make a significant contribution to Alaska salmon harvests.

In 1981, more than three million salmon released from FRED Division hatcheries returned as adults. Three years earlier (1978), the number of returning salmon was less than 250,000. Private non-profit hatcheries contributed an additional 2.5 million salmon to the 1981 return. FRED Division facilities now on line are expected to produce an annual return of 10 to 12 million salmon when full capacity is reached. Based on 1980 prices, this number of fish would be worth approximately $30 million to the fishermen, and about double that in wholesale value. Although 10 to 12 million salmon are not a great number in comparison to a harvest such as the 135 million fish expected in 1982, hatcheries are most valuable in the years of poor survival conditions when natural runs are severely reduced. Over the long term, the FRED Division's objective is to eventually produce, in conjunction with the private non-profit hatcheries, adult salmon returns in the range of 47 million fish. The FRED Division produces a detailed annual report each January which provides more information on the Division's operations and objectives.

FUTURE DEVELOPMENT PROSPECTS

The geographic distribution of harvests and income to fishermen from hatchery production can be expected to correspond to the general locations of hatcheries around the state. Figures 10 and 11 show the locations of existing and planned FRED and private hatcheries.

Marketing

Over the long term, low returns of wild salmon stocks are likely to occur in some years, and hatcheries will help balance the yearly fluctuations in salmon harvests. In the short term, however, Alaska salmon fishermen and processors are faced with what is almost too many fish.

As mentioned earlier, the 1982 salmon harvest is forecast to reach an all-time high of 135 million fish. With salmon markets in a generally depressed condition since the 1979 season and large backlogs of unsold salmon, processors are concerned about difficulties in finding buyers for such a large volume of salmon, and fishermen face the possibility of low prices and insufficient processing capacity. Marketing is therefore one of the seafood industry's highest priorities.

The State's present involvement in marketing is primarily through funding of the Alaska Seafood Marketing Institute (ASMI). Although the Institute will probably not be able to have more than a marginal impact on price levels and markets for the 1982 salmon season, its efforts over the mid to long term may help prevent a recurrence of the current market difficulties by expanding markets and increasing demand for Alaska seafood products. ASMI's current advertising and marketing budget is divided according to the value generated by each type of seafood. About 47 percent of the total budget will be ta.geted to salmon marketing, 44 percent to crab, and whitefish species, including halibut and shrimp, will receive 9 percent. Canned salmon is presently ASMI's first priority, because of the large pink salmon harvest expected in 1982 and the fact that most pink salmon are canned.

Bottomfish/Underutilized Species

The extent and potential of Alaska bottomfish resources has been well documented and publicized in recent years. Although the pace of development of Alaskan bottomfish harvesting has been slower than some had projected or hoped for, significant progress appears to be occurring. Harvests of bottomfish by U.S. vessels in Alaska's offshore waters have nearly doubled in every year since 1978, and increased from about 85 million pounds in 1980 to 237 million pounds (preliminary estimate) in 1981 -- a nearly three-fold increase. About 211 pounds of this amount was taken in joint ventures between U.S. fishermen and foreign processing vessels, primarily Soviet and Korean, with limited participation by the Japanese and Poles. The shore-based catch of 26 million pounds was also a large increase from the 1980 level of about 14 million pounds.

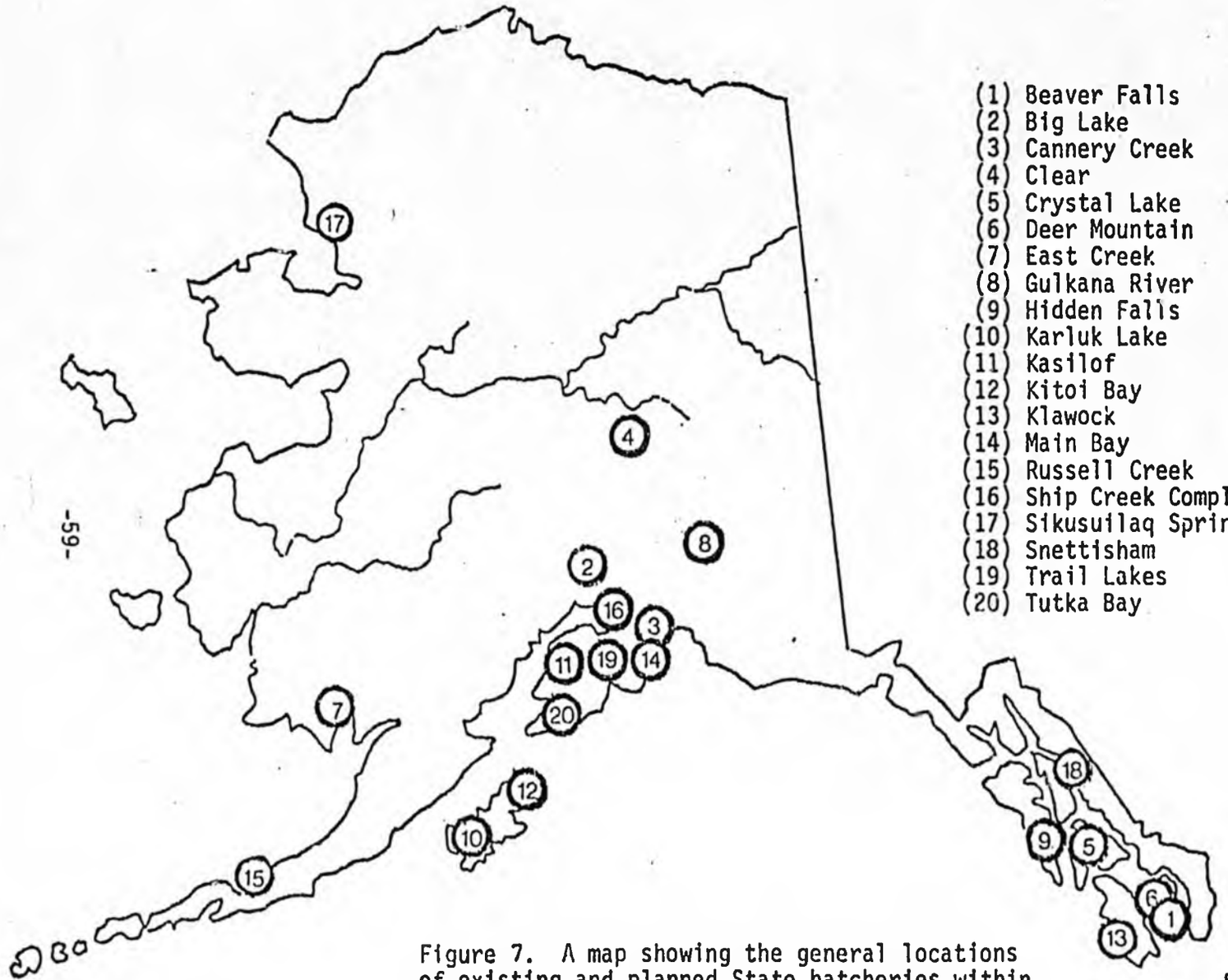

FIGURE 10

Figure 7. A map showing the general locations of existing and planned State hatcheries within Alaska, 1980.

SOURCE: FRED Division Annual Report

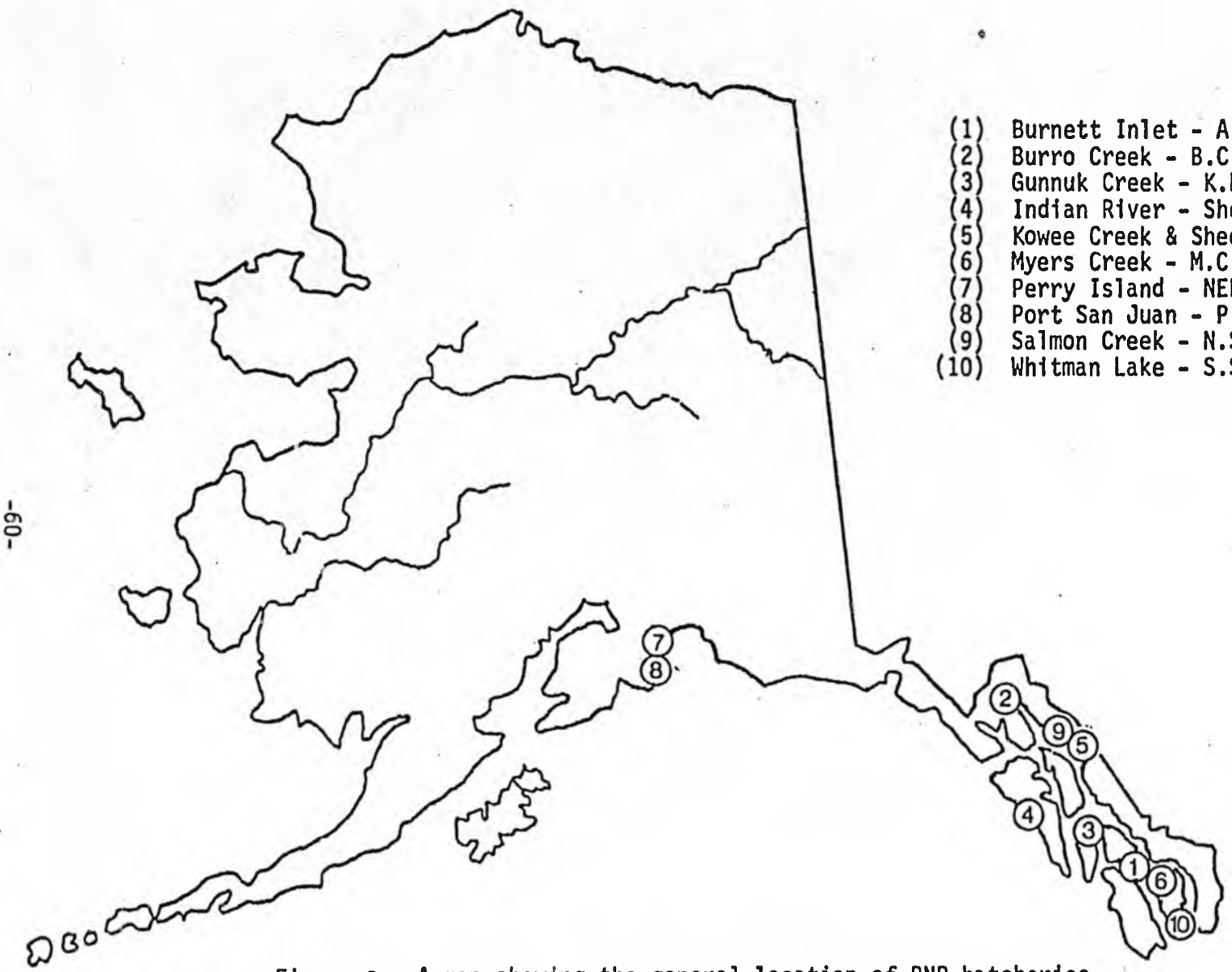

FIGURE 11

Figure 8. A map showing the general location of PNP hatcheries within Alaska, 1980.

SOURCE: FRED Division

On-shore processing of Alaska bottomfish still appears to be somewhat marginal in terms of profitability. Icicle Seafoods in Southeast Alaska has discontinued most of its bottomfish operations, and the Alaska Food Co. bottomfish plant in Kodiak has filed for a Chapter 11 bankruptcy reorganization. However, a salted cod plant is being constructed in Unalaska by Jangaard Fisheries and bottomfish plants are planned for Akutan and Sand Point. Alaska Food is still purchasing bottomfish, as is the Universal Seafoods plant in Kodiak. It appears that bottomfish development is likely to have the greatest impact in the Aleutian Chain, primarily Unalaska, and in Kodiak, Seward, and Sitka. Other communities such as Anchorage would benefit indirectly from the provision of support services to the industry.

The joint venture bottomfish harvest in 1982 may increase substantially over 1981 levels. The U.S. State Department is withholding 50 percent of the foreign bottomfish allocations pending a review of joint venture arrangements. A goal of 20 percent of the total bottomfish harvest has been proposed for the U.S. harvest, including both joint ventures and on-shore processing. This goal, which would be about 800 million pounds of bottomfish, is a very large increase from 1981 harvest levels and appears fairly optimistic. However, it is clear that the State Department is willing to use the leverage of the foreign allocations to encourage bottomfish development in Alaska.

Another potential long-term development is the harvest of presently underutilized species, such as capelin. There are several fish species which are now harvested only as incidental catches, but which are present in large enough concentrations to be commercially harvested if a market were available. Capelin is one of the major fisheries in the North Sea, with recent landings of over four times (in pounds) the total domestic Alaska landings for all species. The lack of marketing channels, processing capacity, and fishing experience for underutilized species make such development primarily a long-term prospect.

Improved Management Capabilities

State and federal fisheries management capabilities have been strengthened considerably in recent years, but there are still possibilities for further improvements which could raise harvest levels for some Alaska fisheries. Recent management actions may also have a strong continuing impact on harvest levels in future years. The reduction in the high seas interception of Alaska salmon by Japanese and other nations is generally believed to have played a major role in the recent increases in salmon harvests to record levels. The reduction was a result of treaties negotiated by the U.S. State Department during the establishment of the 200 mile limit, and should continue to have a favorable impact on salmon harvests in future years.

FUTURE DEVELOPMENT PROSPECTS

Future management improvements may be realized through both technological developments such as more accurate sonar fish counters, and additional management resources from increased funding levels. For example, it is now difficult to monitor salmon escapements in heavily glaciated or silted rivers, as both visual salmon counting and existing sonar equipment are inadequate. Research is currently under way to develop sonar gear which will provide accurate fish counts in such rivers, thereby ensuring that escapements are adequate and that surplus fish can be harvested by fishermen. Additional management funding could allow closer monitoring of individual fisheries, greater separation of mixed stock fisheries, and so on.

Several fisheries are suffering continuing declines in harvest levels or are in danger of declining, and could therefore particularly benefit from improvements in management techniques or resources. These include the Southeastern king, coho, and chum salmon stocks, Copper River sockeye, Cook Inlet coho, and Kotzebue chum salmon. Crab harvests in several regions are also declining. Although fisheries managers generally expected the crab decline and attribute it mainly to less favorable survival conditions, additional research into the crab fisheries could prove beneficial to long-term yields.

Expanded Fish Processing/Storage Capacity

One way in which the economic value of Alaska's fisheries could be increased without catching more fish is to develop more in-state processing and storage capability. While most Alaska seafood products are currently processed in the state, much of the storage and marketing of the processed products occurs in cities outside of Alaska, primarily Seattle. Greater cold storage capacity in the state could therefore increase the amount of fisheries value remaining in the state, as well as potentially increasing control over the marketing process. A 1980 study of the Anchorage salmon processing industry found that cold storage capacity was very limited, so much so that a few day's disruption of marketing channels from weather or other factors could require reductions in the volume of fish processed. A number of the processors interviewed believed that a major cold storage facility in Anchorage could be a major benefit to the industry, although the economic feasibility has yet to be determined.

The processing of seafood into higher value products is also a possible development strategy. The trend in recent years toward more frozen processing of salmon, rather than canning, is an example of higher value processing. The marketing of fresh, smoked, and other specialty seafood products has also increased substantially, and offers additional development potential.

APPENDIX A

INVENTORY OF STATE AGENCIES

Source: Coastal Fisheries Assistance Program, Final Report, Department of Fish and Game, November 1981

Source: Coastal Fisheries Assistance Program, Final Report, Department of Fish and Ga November 1981

INVENTORY OF STATE AGENCIES

A. Office of the Governor

1. Special Assistant on Natural Resources - Provides guidance on State policy regarding fisheries and other natural resource issues.

2. Division of Budget and Management - Analyses budget proposals for fishery related departments and programs.

3. Division of Policy Development and Planning

a. Policy and Program Specialist for Fisheries

1. Responsibilities

a. Monitors compliance of fisheries development projects with program policies.

b. Develops options for regional planning process in Aleutian Islands.

b. Office of Coastal Management

1. Oversees the development of coastal management plans by local governments. These plans identify sites which are used for subsistence, recreation or commercial fishing, important habitat, or suitable for fisheries related facilities.

2. Coordinates State review of Federal permitting processes which regulate activities which may impact fisheries habitat.

4. Alaska Fisheries Council - The Council is composed of the Commissioners of Fish and Game and Commerce and Economic Development; State legislators; the Director of FRED Division (Department of Fish and Game); representatives from the National Marine Fisheries Service, the Board of Fisheries and the Office of the Governor; and private citizens. The Council played an active role in developing the State's private non-profit hatchery program and presently monitors the progress of fisheries enhancement and development programs. The special Projects Coordinator, Office of the Governor, coordinates the Council and for this reason the Council is described here.

B. Department of Commerce and Economic Development

1. Commercial Fisheries Development Division

a. Lead agency for fisheries development, coordinates programs in other agencies which deal with development. The State's Tokyo and Copenhagen offices previously under the Office of International Fisheries and External Affairs will be directed by this division.

b. Present and planned programs include:

1. Mustad autoline production trial

2. Prince William Sound jigging system trial (with Alaska Fisheries Development Foundation)

3. Marketing of food herring (with Danish consultant)

4. Production and marketing of herring (with Alaska Federation of Natives)

5. Marine Advisory System (with Bering Straits Fishermen's Association)

6. Quality control for Bristol Bay sockeye (with IMAKPIAK Regional Aquaculture Association)

7. Bottomfish profiles - review of stock information by species to help fishermen locate large concentrations of bottomfish.

2. Division of Business Loans

a. Commercial Fishing Loan Program - Up to $50,000 may be loaned at 9.5% for the construction, purchase, or renovation of fishing vessels.

b. Fisheries Enhancement Loan Program - Up to $6,000,000 to regional associations and $1,000,000 for other nonprofit hatchery corporations, at 9.5% for 30 years for hatchery preconstruction and and construction activities and operating costs.

3. Commercial Fisheries and Agriculture Bank (CFAB) - Makes loans to commercial fishermen and farmers. The Bank has been established as a public corporation with a legal existence independent of the State. It is, by statute, also an instrument of the Department of Commerce and Economic Development and for this reason is listed here.

C. Department of Community and Regional Affairs

1. Commissioner's Office - Rural Development Council -

a. Composed of 3 commissioners, 3 federal officials, 2 legislators, the Director of DPDP, and 6 representatives from rural areas.

b. Responsibilities. Newly formed, it is not yet clear what role the Council will play in fisheries.

2. Division of Community Planning

a. Assists communities in planning for infrastructure needs resulting from development. Administers Coastal Energy Impact Program (CEIP) which provides funding for studies which determine the effects of energy development.

b. Recent and current programs include:

1. an evaluation of 5 communities as potential sites for support facilities for the bottomfish industry. Evaluation of 5 more communities is underway.

2. funding planners in Unalaska, Sand Point, King Cove, and Yakutat.

3. funding wildlife evaluations and salmon tagging program.

D. Department of Education, Adult and Continuing Education Unit.

1. Provides statewide interagency coordination and development of fisheries education.

2. Assists in developing new fisheries education programs.

3. Develops instructor training programs and education research capabilities.

E. Department of Environmental Conservation

1. Coordinates State's environmental management efforts. Establishes water quality standards and reviews and certifies development projects which may impact salmon spawning streams.

2. Meat and Seafood Inspection Program - Inspects quality of seafood produced in Alaska. Products which are contaminated are confiscated.

F. Alaska Board of Fisheries - The seven member Board of Fisheries is appointed by the Governor to establish seasonal fishing regulations. The Board's activities are coordinated by a staff located within the Department of Fish and Game.

G. Department of Fish and Game

1. Commercial Fisheries Division

a. Implements and maintains the State's commercial and subsistence management programs.

b. Conducts management related research covering domestic fisheries with particular emphasis on stock status and fishery performance.

c. Serves as scientific staff to the Board of Fisheries which establishes fisheries regulations.

d. Coordinates interaction between the State and the North Pacific Fishery Management Council.

2. Fisheries Rehabilitation Enhancement and Development

a. Develops, maintains and coordinates State plan for present and long range rehabilitation.

b. Operates State hatchery facilities and other enhancement projects such as fish ladders, lake fertilization and stocking and stream clearances.

c. Conducts research on fish culture technology, genetics and pathology.

3. Sports Fish Division

   a. Manages and develops sport fish resource.

   b. Stocks fish in freshwater systems.

   c. Conducts harvest, life history, and land use studies.

4. Habitat Section

   a. Responsible for the protection, maintenance and improvement of fish and wildlife, habitat.

   b. Regulates by permit process activities in anadromous streams, game refuges and critical habitats. Reviews and monitors projects associated with pipeline and Haul Road.

   c. Participates in land use planning and coastal management program.

   d. Solicits nominations for critical habitat areas.

5. Subsistence Section

   a. Compiles existing data and conducts studies on the role of subsistence activities in lives of State residents.

   b. Provides information and anlysis to the public, agencies, and other organizations.

   c. Assists the Department and Boards of Fisheries and Game in classifying subsistence users, uses, and methods of harvest.

6. Public Communication Section

   a. Issues news releases and prepares public service announcements.

   b. Publishes Fish Tails and Game Trails, the Department's magazine.

7. Commercial Fisheries Entry Commission (The Commission is grouped with ADF&G for administrative purposes, but functions autonomously). Responsible for determining optimum gear levels for sustaining economic viability of the State's fisheries.

   a. Application Section - Evaluates initial permit applications.

   b. Permit Section - Permit renewal and vessel licensing.

   c. Data Processing Section

   d. Research and Planning Section - Last year helped develop limited entry program for hand troll fishery. This year will review capitalization trends and classification by fishery, gear type, and resident/nonresident status.

8. Alaska King Crab Marketing and Quality Control Board (The Board is grouped with Fish and Game for administrative purposes, but functions autonomously) - Promotes king crab through marketing and quality control programs.

H. Department of Labor

1. Commissioner's office - Responsible for mediating price disputes when asked by industry to participate. The Bristol Bay strike was the only dispute they were brought into formally this year.

2. Wage and Hour Division - Responsible for bonding of fish buyers and processors to ensure that they will pay employees and fishermen. A $10,000 bond must be posted by all buyers and processors.

3. Employment Security Division, Employment Services - Administers program for placing Alaskan residents in processing jobs. Focus is on identifying problems with hiring residents and rural recruitment.

4. Research and Analysis

   a. Conducted survey on the intent of fishermen and processors to participate in bottomfish fisheries.

   b. Conducted survey of fisheries education programs.

   c. Plans to develop employment statistics to aid in policy analysis and decision making.

I. Department of Law

1. Provides legal council to the State on fisheries related issues. The Department works closely with all state agencies listed in this section.

2. Works closely with attorneys in the National Marine Fisheries Service, Department of the Interior and U.S. Justice Department regarding joint investigation and enforcement activities as well as cooperation with federal legal officers regarding prosecutions involving illegal activities that represent violations of both state and federal laws.

J. Department of Natural Resources

1. Division of Forest, Land, and Water Management

   a. Classifies State lands, sale of State lands, mineral resources, sand, gravel and timber.

   b. Develops land use plans which include designation of fish and wildlife habitats (plans for two areas have been completed).

2. Division of Parks - Responsible for park management. Conducting a comprehensive outdoor recreational plan which will include assessment of the importance of sports fisheries to the State's park system.

K. Department of Public Safety.

1. Division of Fish and Wildlife Protection

   a. Responsible for the enforcement of state laws and regulations pertaining to the fish and game resources for vessels and persons licensed by the state for fishing.

   b. Enforces provisions of the Alaska Commercial Fisheries Entry Commission regulations.

   c. Enforces state fishing license provisions required by state statute.

   d. Conducts patrols in state and offshore waters, investigating, apprehending and prosecuting violations of state fisheries laws and regulations.

   e. Maintains close liaison with the Alaska Department of Fish and Game, the Alaska Board of Fisheries, the U.S. Coast Guard and other fisheries orientated agencies in order to develop enforcement programs which are compatable with management goals and the maintenance of cooperative associations with federal and state agencies.

2. Aircraft Section

   a. Provides and maintains department aircraft for fisheries enforcement.

3. Vessels Section

   a. Operates and staffs Marine Section vessels; carrying out fishery enforcement programs, search and rescue missions. Develops and evaluates department vessel needs, procures vessels through competitive bidding, schedules maintenance, trains and evaluates vessels operators performance.

4. Investigative Support Unit (I.S.U.)

   a. Conducts complex investigations into major fisheries violations preparing case material and obtaining evidence for prosecution by the Alaska Department of Law. Maintains a criminal laboratory and staff capable of performing complex scientific studies on evidence.

5. Information and Education Section

   a. Develops and participates in informational and public educational programs through the use of presentations to schools, public and private organizations and through newspaper, radio and television media networks to gain public compliance and support of divisional programs and goals.

6. Division of Alaska State Troopers

   a. Though primarily responsible for the enforcement of criminal laws, the Alaska State Troopers often assist Fish and Wildlife Protection in enforcing Fish and Game Laws and in protection of the public's safety. Examples of this would be their participation in the Bristol Bay salmon fishery strike related activity last summer and expectedly again this summer. Being "brother" enforcement divisions within the same department activities are often exchanged when the need arises.

L. Department of Revenue

1. Administers fish taxation programs.

2. Alaska Renewable Resources Corporation - Serves as a venture capital bank to finance development of the State's renewable resources. Over $18 million have currently been invested in various fisheries projects. ARRC operates independently from the Department of Revenue, but is associated with the Department for administrative purposes.

M. University of Alaska

1. College of Environmental Sciences, Sea Grant - Conducts programs in education, research and public service dealing with marine science, fisheries harvesting and processing, and food technology. Long term plans include upgrading bachelor's and creating a masters degree program in fisheries and developing a fisheries technology center.

2. Marine Advisory Program - Serves as a communication link between scientific, educational and marine industrial communities. Has provided technical assistance and training to aquaculture industry, harvestors and processors.

1981 SPECIAL REPORTS
HOUSE RESEARCH AGENCY

81-1 Petroleum Refining and Consumption in Alaska: Implications for Management of Royalty Oil
May 1981

81-2 Potential for Local Coal Use in Rural Alaska
January 1982

81-3 Personal Income in the Lower Yukon-Kuskokwim Region: An Overview of Income, Government Services and Transfer Payments
January 1982

81-4 Financing Agriculture in Alaska
January 1982

81-5 The Alaska Fishing Industry: An Overview of State Expend.tures and Economic Benefits
January 1982

81-6 Import Substitution in Rural Alaska
January 1982

81-7 Rural Economic Development: An Analysis of State Policies
January 1982

*All reports will be available by February 1, 1982

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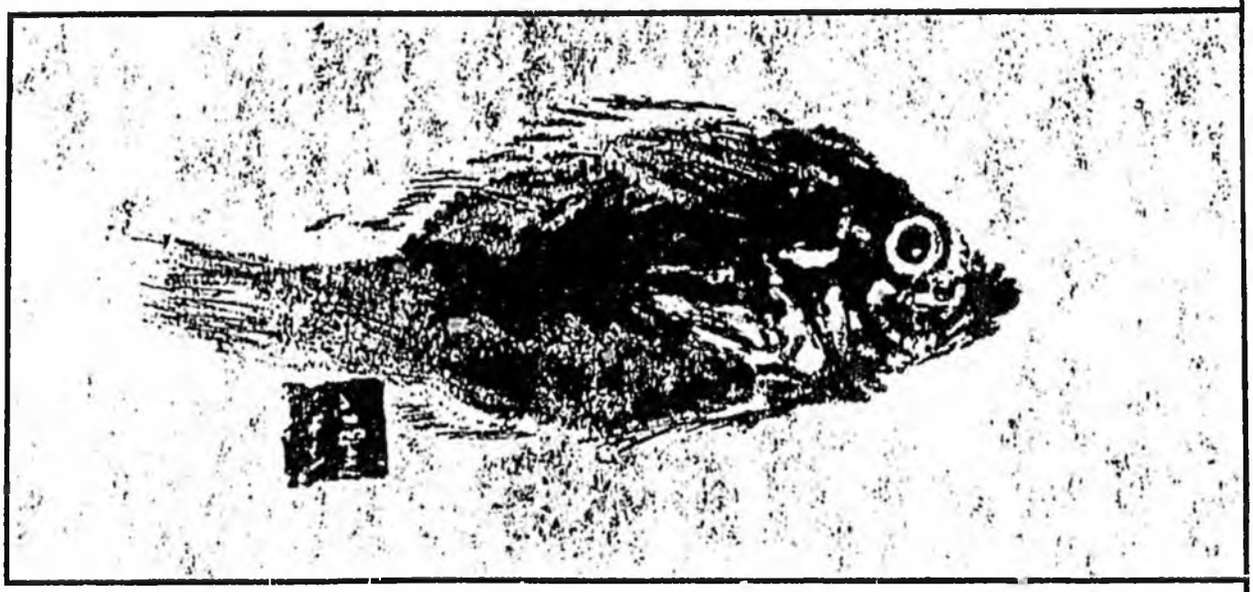

February 1982

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ALASKA FISHERIES CENTER STUDY GROUP

TO THE

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